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ABSTRACT

This dissertation focuses on predicting alumni gift giving behavior at a large public research university (University of Michigan). A conceptual model was developed for predicting alumni giving behavior in order to advance the theoretical understanding of how capacity to give, motivation to give, and their interaction effect gift giving behavior. The study sample consisted of 110,010 respondents (44 percent response rate) to a 1986 University of Michigan Alumni Census survey. The study used structural equation models with latent variables and the Partial Least Squares (PLS) computer statistical package. The study revealed several theoretical findings as well as practical implications including that: (1) PLS model results provide a basis upon which to make market segmentation decisions for an alumni body; (2) PLS modeling technology make it possible to gauge the impact of a change in any exogenous variable on alumni gift giving behavior; (3) involvement of fund raising practitioners with students prior to graduation may assist in the transition from student to alumni donor; and (4) new electronic screening technologies will undoubtedly change the way institutions think about alumni research in the future. A seven point model for building effective alumni fund raising programs is provided. Appendices include the Alumni Census Questionnaire. (Contains 82 references.) (GLR)

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PREDICTING ALUMNI/AE GIFT GIVING BEHAVIOR:

A STRUCTURAL EQUATION MODEL APPROACH

by

John Wayne Mosser

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
(Education)
in The University of Michigan
1993

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Doctoral Committee:

Professor Garry R. Walz, Chairman
Associate Professor Lawrence S. Berlin
Associate Professor Michael D. Johnson
Associate Professor Peter J. Rea, Baldwin-Wallace College

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ABSTRACT

PREDICTING ALUMNI/AE GIFT GIVING BEHAVIOR: A STRUCTURAL EQUATION MODEL APPROACH

by

John Wayne Mosser

This dissertation focuses on predicting alumni/ae gift giving behavior at a large public research university. A conceptual model and approach for predicting alumni/ae gift giving behavior were developed to advance the theoretical understanding of how capacity to give, motivation to give, and their interaction effect alumni/ae gift giving behavior. The dissertation uses structural equation models with latent variables and the Partial Least Squares (PLS) computer package to analyze study data. This data analysis approach is one of a class of techniques referred to as *a second generation of multivariate analysis.*

The study sample consisted of 110,010 respondents to a 1986 University of Michigan Alumni Census survey, a 44% response rate to a mailing to 250,000 alumni/ae. A primary sample and hold out sample and their subsets were drawn to estimate the study models.

The study results provided several interesting theoretical findings. First, the structural equation model approach utilized in the study made it possible to explore the theoretical relationships among the latent constructs in the study. Second, this study was able to operationalize an interaction term that prior research had identified but not been able to successfully measure. Third, it was learned that the interaction construct proposed by the study did not add significant explanatory power to our understanding of why alumni/ae make gift giving decisions over and above the main effects of capacity to give and motivation to give. Fourth, it was discovered that capacity to give had a mediating (or indirect) effect on alumni/ae gift giving behavior through motivation to give. Fifth, the results of the study point to the fact that there are many other factors that must be considered in attempting to explain alumni/ae gift giving behavior.

The findings of the study also point to several practical implications: (1) PLS model results provide a basis upon which to make market segmentation decisions for an alumni body; (2) PLS modeling technology make it possible to gauge the impact of a change in any exogenous variable on alumni/ae gift giving behavior (to perform a what if analysis); (3) involvement of fund raising practitioners with students prior to graduation may assist in the transition from *student* to *alumni/ae donor;* and (4) new electronic screening technologies will undoubtedly change the way institutions think about alumni research in the future.

Lastly, this study presents a seven point model for building effective alumni/ae fund raising programs.

"It is not too much to say that this relationship
of the graduate to his alma mater
is an expression of the two sides of the American genius—
its idealism, sentiment, if you will,
and its ability for organization."

Wilfred B. Shaw

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This dissertation is dedicated

to the memory of

Ruth Preston Mosser.

She taught me that life isn't fair,

but, with hard work and determination,

anything is possible.

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As I read other dissertations in preparing this one, a consistent theme that I encountered is that no dissertation is ever the work of one individual. At each stage of the development of this dissertation I became keenly aware of how fortunate I was to be assisted, advised, and guided by such a gracious and talented group of people. I would like to publicly acknowledge their many forms of support.

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CHAPTER I

INTRODUCTION AND OVERVIEW

Introduction

From the time of the founding of Harvard College some 300 years ago to the present, American colleges and universities have provided learning opportunities for their students, generated research for the improvement of the human condition, and enriched the communities they serve. Throughout its history, American higher education has depended upon private voluntary support to accomplish these goals and to serve its various constituents.

Kotler and Fox (1985) refer to these constituents as the *publics* with whom an institution of higher education must manage responsive relations. They define a public as a "distinct group of people and/or organizations that has an actual or potential interest in and/or effect on an organization" (p. 24).

One key public that provides vital sources of voluntary support for all types of institutions of higher education, public and private, is alumni/ae. College and university fund raising programs look to alumni/ae as a major source of private revenue. Most programs solicit their alumni/ae on a yearly basis through a program known as the annual fund, and with good reason.

According to *Giving USA*, 83% of all private contributions made in 1990 represented donations made by individuals, totaling approximately $101.8 billion (Weber, 1991). The Council for Financial Aid to Education (CFAE) estimates that 49% of the total voluntary support to higher education institutions that same year (approximately $4.8 billion) came from individual donors (CFAE, 1991a). The Council further estimates that donations from

institutional alumni/ae represent 26% of that figure. In other words, alumni/ae were responsible for fully one quarter of all private voluntary support of higher education.

While revenue from private giving has always been of significant importance to American higher education, maintaining and expanding these resources throughout the rest of this century will approach critical importance due to the decline in federal and state resources available to colleges and universities nationally and the resulting institutional budget cuts due to this decline (Leslie & Ramey, 1988). The need for voluntary support for colleges and universities has become essential. Leslie and Ramey (1988) point out that voluntary support has become the only real source of discretionary income that institutions possess, making it a critical resource in balancing institutional budgets. For higher education fund raising to be successful in the future, institutions must develop strategies to assure success in this important area (Weber, 1991).

A major obstacle in the field of alumni/ae fund raising has been the absence of research which identifies the characteristics of potential contributors with a high degree of certainty. Knowing the characteristics of potential donors before a fund raising effort has begun would logically make fund raising efforts more effective. Research can help show development professionals where to look for support and how to best attain it. Pezzullo and Brittingham (1990) posit that demographic data on public higher education alumni/ae have great potential to be analyzed to determine what characteristics have separated alumni/ae donors from nondonors.

This type of research is commonly referred to as *marketing research*. Kotler and Fox (1985) define marketing research in this way:

> Marketing research is the systematic design, collection, analysis, and reporting of data and findings relevant to a specific marketing situation or problem facing an institution. (p. 55)

This type of research can reveal important information about alumni/ae who make financial contributions, such as their attitudes toward the institution and its many component parts, sources of alumni/ae satisfaction and dissatisfaction with the institution, income levels

or giving ability of alumni/ae, and their motivation to support their alma mater. This information can provide powerful insights into which alumni/ae to approach, how best to solicit these alumni/ae for financial gifts, and what level of gift may be realistic to pursue.

Predicting Alumni/ae Gift Giving Behavior and Donor Motivation

For the last three decades, researchers have utilized a variety of demographic variables characteristic of alumni/ae donors to identify prospective donors. These have included age, sex, marital status, number of children, level of income, number of college degrees, etc. The studies that have employed these measures have been descriptive in nature and have been successful in identifying characteristics of likely donors, but tend to be limited in their usefulness due to insufficient regard for factors that underlie actual contribution decisions (Leslie & Ramey, 1988).

A significant accomplishment of previous research has been the identification of the usefulness of demographic information to segment prospective donors based on attributes of a model group of current donors. This prior research has provided another step toward predicting alumni/ae gift giving behavior (Melchiori & Szady, 1988).

Previous research has also shown that a donor's capacity to give and motivation to give are key determinants in alumni/ae gift giving decisions (Connolly & Blanchette, 1986; Paton, 1982, 1986; Volkwein, Webster-Saft, Xu, & Agrotes, 1989).

The research of Connolly and Blanchette (1986) and Paton (1982, 1986) points to the fact that there is good reason to believe capacity to give and motivation to give do interact, yet no study has explicitly examined or modeled the effects of this interaction on alumni/ae gift giving behavior. Therefore, the interaction of these two concepts, capacity to give and motivation to give, appears to be an unexplained component in alumni/ae gift giving decisions.

Conspicuous by its absence from each of these streams of research is the application of second generation multivariate analysis or causal modeling techniques. Wolfle (1985) posits

that, although the path analysis approach was devised over 60 years ago, its recent introduction in the social sciences has delayed its widespread use in higher education research. Wolfle cites two reasons causal models are useful in higher education research:

> (1) The formulation of a problem in a causal framework forces a degree of explicitness that is often absent in research employing other multivariate techniques. The drawing of the path diagram, the arrangement of variables with causal arrows, all force the researcher to confront his model of reality.
>
> (2) Causal models provide a powerful aid to the substantive interpretation of results. They not only allow the assessment of hypothesized direct causal links, but the researcher can also obtain estimates of the extent to which intervening variables account for relationships between predetermined and subsequent variables. (p. 383)

The significance of these theory building and testing analysis techniques provides such a dramatic improvement over earlier multivariate analysis that Fornell (1982) has coined the term, *a second generation of multivariate analysis.*

Second generation multivariate analysis techniques have rarely been used in fund raising research and appear to be new to the study of alumni/ae gift giving behavior.

Fornell (1987) describes the power of second generation methods:

> All second generation methods have the capability to analyze (1) multiple criterion and predictor variables, (2) unobservable theoretical variables, (3) errors in measurement (in one form or another), and (4) confirmatory applications. 'Confirmatory' merely implies that the analyst must make some explicit substantive (theoretical) and measurement assumptions by hypotheses that can be tested statistically. (p. 411)

The power in uniting theory and statistical analysis makes second generation methods particularly attractive for application to the study of alumni/ae gift giving behavior.

Statement of the Problem

This study will develop a conceptual model and approach for predicting alumni/ae gift giving behavior. The central problem this dissertation will address is the unspecified relationship between Capacity to Give, Motivation to Give, and their Interaction in determining Alumni/ae Gift Giving Behavior. This study will expand upon prior research from

simple linear models to the development of an interactive structural equation model using a partial least squares analysis.

Significance of the Research

This dissertation will advance the theoretical and empirical study of alumni/ae gift giving behavior. In addition, the proposed model will make several important theoretical contributions to the alumni research and fund raising research literature. First, the application of a model of alumni/ae gift giving behavior will provide a method to operationalize the study of predicting alumni/ae gift giving behavior. Second, the use of second generation multivariate analysis techniques will advance the study of fund raising research. Third, the model will be tested in a situation using simultaneous equations modeling which allows a test of the whole model, as opposed to testing the different relationships independently. Fourth, this analysis approach will allow the testing of prior theories of alumni/ae gift giving behavior as well as the development (building) of new theoretical implications for alumni/ae gift giving behavior.

This research provides additional insight into the variables that influence alumni/ae giving behavior. This information has the potential to directly influence the ways in which development practitioners tailor their fund raising efforts and focus their time and resources on constituent markets. These results have the potential to be used to enhance the strategic allocation of resources to assist institutions in achieving a more optimal return on their fund raising investments. This type of information may be useful to the University of Michigan in light of the University's September 18, 1992, announcement of a five-year capital campaign to raise a record $1 billion, the largest campaign goal for a public university in the United States.

Overview of Conceptual Model and Approach

A latent variable path model of alumni/ae gift giving behavior will be developed to test the hypothesized influences on alumni/ae giving. The Volkwein et al. (1989) model uses academic and social integration and demographic background as variables. The proposed latent variable path model of this study separates the academic and social integration construct into two distinct components, (1) Academic Integration, and (2) Social Integration. The proposed model also eliminates demographic background as a construct with the rationale that demographic information, while providing latent construct indicators, does not itself constitute a latent variable. The proposed latent variable path model also adds an additional construct, the Interaction of Capacity to Give Index and Motivation to Give Index. The proposed model suggests that Capacity to Give, Motivation to Give, and the Interaction of Capacity to Give Index and Motivation to Give Index all influence Alumni/ae Gift Giving Behavior.

Empirical Study Overview and Data

During the calendar year 1986, under the auspices of the Office of the President, all living reachable alumni/ae of the University of Michigan were surveyed through an alumni census. The census survey was designed to collect a wide variety of demographic, geographic, attitudinal and behavioral information from respondents. Additionally, the survey was designed to verify and update existing university records on Michigan alumni/ae (Melchiori & Szady, 1987).

The Survey Instrument and Data Collection Procedures

Melchiori and Szady (1987) report that the following procedures were implemented to design and collect census information. The census instrument was developed in 1985 by staff in

the university central development office through a review of the related literature and supplemented with university-wide input. The questionnaire was tested in November, 1985, and minor modifications were subsequently made. In mid-March, 1986, the final version of the four-page survey was sent to 250,000 alumni/ae with valid addresses. Basic name and degree information from the development office's alumni donor data base was printed on each census survey. A second identical census survey was sent in late August, 1986, to all alumni/ae who had not yet responded to the first. Both mailings were sent third class with a first class return envelope included. Printing and mailing were performed by an outside vendor, as was the data entry of the survey responses.

Creation of the Study Data Set

Melchiori and Szady (1987) describe the creation of the data set in the following manner:

> On December 19, 1986 an extract tape of the alumni donor data base was pulled containing over 330,000 alumni/ae records (including 110,010 living census respondents) of 194 data fields, 105 of which are census related. (p. 2)

The 110,010 respondents produced a response rate of 44%. The final data set containing census survey responses and university alumni donor data base background data was entered into an OSIRIS . IV computer file.

This study will utilize a secondary analysis of the data contained in this OSIRIS . IV data set with census and alumni donor data base information on the 110,010 respondents to the census survey. The OSIRIS . IV program will be used to generate univariate and bivariate statistics, and recode new variables to be used in testing the study model.

Finally, the OSIRIS . IV program will be used to generate a random sample of the census respondents and create a correlation matrix. This matrix will then be transferred to the PC version of the Partial Least Squares (PLS) program for testing and analysis of the study model using this second generation multivariate analysis technique.

Expected Outcomes

This study is needed because of the lack of theoretical research on alumni/ae gift giving behavior and the lack of appropriate analysis techniques in analyzing gift giving data.

This study will produce the following outcomes:

(1) a structural theoretical model and corresponding measurement model for predicting alumni/ae gift giving behavior;

(2) a *what if analysis* capability such that if X changes in the model by Y%, giving will change by Z%;

(3) a model that offers potential as a market segmentation tool for differentiating alumni/ae donors and prospective donors into definable segments.

Organization of the Study

This study is organized into five chapters. Chapter 1 provides an introduction to the problem, the conceptual model and approach, an overview of the empirical study and data used for analysis, and the expected outcomes of the study. Chapter 2 contains a review of the literature on educational fund raising and alumni/ae giving. Chapter 3 presents the proposed latent variable model of alumni/ae gift giving behavior, the measurement model, and seven hypotheses to be tested. Chapter 4 describes the results of the test of the model and hypotheses and chapter 5 presents a summary, implications, and recommendations for future research.

CHAPTER II

REVIEW OF RELATED LITERATURE

This chapter is intended to serve three purposes: (1) to summarize current knowledge in the area of alumni research and alumni/ae giving; (2) to clarify the need for and intended contribution of the current study; and (3) to provide a reasonable basis for the development of the model of alumni/ae gift giving behavior and subsequent hypotheses to be tested in this study.

Chapter 2 contains a review of the literature related to research on alumni/ae giving in higher education fund raising. This review is organized into the following categories: (1) historical literature, (2) an overview of alumni research, (3) studies using general demographic variables, (4) studies using collegiate experience variables, (5) studies using alumni/ae experience variables, (6) studies focusing on the impact of intercollegiate athletics on alumni/ae giving, (7) studies of capacity and motivation, and (8) other related research.

Historical Literature

The following is a brief overview of historical developments related to alumni/ae support at the University of Michigan. The key developments singled out are not meant to be an exhaustive chronology, but an overview of events that have had an impact on alumni/ae private support of the institution and public higher education overall.

The relationship between an institution of higher education and its alumni/ae has been described in many ways over the last thirty years. Information provided in chapter 1 underscores the increasingly critical financial relationship between colleges and universities

and their alumni/ae. Wilfred B. Shaw, a past president of the Association of Alumni at the University of Michigan, described this relationship in the following way:

> It is not too much to say that this relationship of the graduate to his alma mater is an expression of the two sides of the American genius—its idealism, sentiment, if you will, and its ability for organization. (Maxwell, 1965, p. 3)

While colleges and universities have existed in this country since the 1640s, the first formal organization of alumni did not occur until the late 1700s. Williams College, in Williamstown, Massachusetts, is credited with the oldest organization of college alumni in this country (Curti & Nash, 1965). Following a period of steady growth after its founding in 1793, the college—which was located in a remote and sparsely settled section of the state—began to lose prospective students to institutions in neighboring states. Zephaniah Moore, then president of the college, proposed moving the institution to the more populated town of Amherst. The Society of Alumni was organized in 1821 to oppose the move and successfully petitioned the legislature for financial aid to keep the college in Williamstown.

Almost half a century later, the University of Michigan took its place in history as a leader in the field of alumni/ae giving. From the 1860s to the present, the University of Michigan has established initiatives that have served as examples to other colleges and universities in the area of alumni relations and fund raising. The following is a brief chronology of events at the University of Michigan as they relate to the formal organization of alumni/ae and subsequent efforts to raise private support with their help.

In 1864, the faculty of the College of Literature, Science, and Arts appointed its first alumni administrator to keep records of the place of residence and occupation of the college's alumni (Maxwell, 1965). Professor Edward P. Evans, registrar of the faculty and member of the Class of 1854, went on to serve as president of the alumni association for the College of Literature, Science, and Arts from 1865 to 1868.

In 1871, President James B. Angell, in his inaugural address, called on alumni of the University to recognize their indebtedness to the institution. Noting the positive impact of the financial support of graduates of privately supported colleges in the eastern United States, he

encouraged Michigan alumni to "testify to their indebtedness to the University by increasing her power and usefulness." He continued by urging alumni not to assume that "the aid furnished by the state leaves no room for munificence" (Curti & Nash, 1965, p. 187).

In 1887, the earliest alumni endowment fund was the gift of Mary Porter, the first woman to attend the University. She gave the University a farm near Chillicothe, Ohio, valued at $2,000 (Curti & Nash, 1965).

On June 30, 1897, the Alumni Association of the University of Michigan was founded as a unified association of all colleges and schools of the University. A membership fee of $1 per year was established and a full-time paid general secretary was hired. This position was the first of its kind in the country (Maxwell, 1965).

In 1914–15, the University of Michigan alumni/ae launched a movement to raise $1 million to build a student union. This movement was later recognized by historians as the first example of mobilizing alumni/ae in a highly organized campaign (Curti & Nash, 1965).

On November 24, 1964, the University of Michigan announced a program to raise $55 million. This marked the first time that fund raising staff were formally organized at the University to conduct a campaign to raise money (J. Roberson, personal communication, October 16, 1992). The president of the University, Harlan Hatcher, made these statements about the campaign:

> This will be the first campaign of this magnitude ever undertaken by a tax-assisted university. We hope its success will have significance far beyond the boundaries of Michigan by setting a new standard for private support of public universities....The goal of $55 million represents money needed right now so that Michigan may continue to lead, not follow, today's swift developments in higher education.
>
> We have called this undertaking "The University of Michigan $55 Million Program" with the subtitle "To Ensure the Vital Margin." The vital margin is the gift support—over and above state and federal funds—which the University has traditionally received and which must continue to receive in ever greater amounts in order to retain its leadership position....It is the Vital Margin which ensures for Michigan the freedom to explore, the capability to achieve and the courage to lead which make the difference between a university which is merely adequate and one which is truly great. (Morris, 1970, p. 25–26)

On September 18, 1992, the University announced a $1 billion campaign goal. In his campaign address to the university community, President James J. Duderstadt stated that this goal represents the largest fund raising campaign ever undertaken by a public university anywhere in the world. He also remarked:

> There is a very interesting paradox here. Despite its great traditions and its distinguished history, Michigan has long been identified with the most progressive forces in America. As a ground breaker. As a place of ferment and change. In a sense we have been a leader not because we focused on the past, but rather because we keep our visions fixed firmly on the needs of the future....There is another interesting paradox, one that relates to our gathering today. Throughout its history, Michigan has been regarded as the flagship of public education in America. Yet the University has benefitted from a strong tradition of private giving. This has frequently provided the margin of excellence for our programs. Indeed the very founding of the University in 1817 involved a gift of land from four American Indian tribes....We are here to celebrate the tradition of public spirit and private support. (J. J. Duderstadt, personal communication, September 18, 1992)

This brief overview of key developments in the organizational life of the University of Michigan and its alumni/ae shows a long history of leadership in alumni/ae voluntary support, not only for the University, but for all of public higher education.

An Overview of Alumni Research

Research studying the interests, opinions, attitudes, and needs of alumni/ae has taken place since colleges and universities have kept records of their alumni/ae. The methods employed and the range of sophistication of research techniques used has varied as widely as the number of research efforts that have been undertaken. With such a broad spectrum of research purposes and goals, Melchiori (1988a) identified a need to define *alumni research* as a field of inquiry.

She defined alumni research as:

> a process of following alumni through their lives and focusing on lifelong demographics, attitudinal issues, and career data in order to understand more fully the underlying motivational forces of alumni as providers. By isolating the characteristics that distinguish alumni as providers, research can both identify potential providers and suggest methods of stimulating provider behavior. (Melchiori, 1988a, p. 10)

While many alumni relations and fund raising practitioners have not recognized alumni research as a field of inquiry, their research efforts have continued to proliferate. However, some academics point out that, in spite of the research that has been done, many more aspects of the dynamic process of fund raising are relatively unexplained. For example, Pezzullo and Brittingham (1990) posit that even though American colleges and universities have grown increasingly dependent on private voluntary support over the last two decades due to the decline in government funding and the increasing need for unrestricted dollars to pursue excellence in programs, research on fund raising has not kept pace with a tremendous expansion of institutional effort.

Pezzullo and Brittingham (1990) and Melchiori (1988a) offer several reasons why fund raising research has not kept pace with fund raising efforts:

(1) many higher education administrators are not aware of how profoundly research information can impact their work;

(2) alumni relations and fund raising units have not been provided with institutional incentives to keep track of alumni/ae (i.e., these activities have not been seen as important);

(3) alumni/ae data bases have not enjoyed a priority position in the development of administrative computing systems;

(4) secondary data that might be utilized for research purposes are largely unsuitable for analysis because much of the data collected are not specific enough to be useful (this often results from a fear of offending potential donors by asking questions that are too intrusive, such as questions about annual income);

(5) few faculty are currently interested in alumni research as a focus of their research agendas;

(6) networking among college administrators, institutional researchers, and academics which has facilitated valuable research with regard to students and faculty, has not caught on in the area of alumni research;

(7) economic models of alumni/ae giving have not explained enough to guide fund raising practitioner efforts;

(8) the largest source of research is graduate student dissertations, many of which do not get published;

(9) development officers tend to share information privately with their fund raising peers rather than publicly publishing information; and

(10) the major professional association for higher education fund raisers, the Council for the Advancement and Support of Education (CASE), is relatively new.

Uses of Alumni Research

On the importance of alumni/ae giving, Spaeth and Greeley (1970) posit that the size of alumni/ae contributions is less important than the overall number of alumni/ae making a contribution. They argue that this is true because when college fund raising officers approach potential donors for large gifts, they use the rate of alumni/ae giving as evidence of the extent of alumni/ae support for their alma mater and, thus, the institution's worthiness for further support. Spaeth and Greeley conclude that anything that increases or decreases the percentage of alumni/ae making contributions is likely to have a pronounced effect on an institution's ability to raise large amounts of money.

"If it is true that support follows involvement or that the two are inextricably linked, then alumni programs are the heart of the enterprise" (Reichley, 1977, p. 304). For this reason, among others, information about alumni/ae needs, interests, and attitudes has become increasingly valuable to higher education institutions. The following is a list of some broad applications of alumni research information cited by Melchiori (1988a), Reichley (1977), and Richards and Sherratt (1981):

- admissions networking—identification and involvement of alumni/ae who are willing and capable of assisting their alma mater to recruit new students;

- continuing education students—alumni/ae are excellent prospective students for continuing education programs, executive education, continuing legal education, continuing engineering education, certificate programs, and graduate education;

- alumni/ae career networks—career networks are a common phenomenon on college campuses across the country, providing guest speakers to student groups, expert speakers to academic courses, presenters for career day programs, internship and cooperative education employers, opportunities for shadowing experiences for students curious about career fields, information interviewing, and employers of graduating seniors through the campus career planning and placement office;

- tracking the accomplishments of successful alumni/ae for public relations purposes—alumni/ae who are distinguished in their field present their alma maters with a tremendous public relations and marketing strength. The opportunity to exploit the

fame of graduates to assist with admissions recruiting, job placement, faculty recruitment, government relations, fund raising and overall institutional prestige is extensive;

• assisting in government relations—alumni/ae can be a real help in advocating for state and federal support and legislation that may benefit both the institution and higher education in general;

• student alumni/ae interaction—seminars that bring alumni/ae and students together to nurture future alumni/ae volunteers committed to and interested in the institution;

• sources of consumer feedback—alumni/ae can provide valuable feedback on how they were served by the curriculum, social climate, and intellectual atmosphere;

• endorsements for education—defending the merits of higher education at times when public sentiment may lack confidence in the value of a college education.

Despite these many and varied applications of alumni research information, Melchiori (1988a) concludes:

> Most alumni research, however, is conducted to enhance fund raising efforts....Conducted almost entirely for internal consumption, these projects are empirical assessments of alumni and donor characteristics for the purpose of market segmentation and strategic long-range planning. (p. 11–12)

Three Decades of Research on Characteristics of Donors and Nondonors

Carbone (1986) posits that, given the current knowledge of fund raising, general theories that can provide guidance for all types of fund raising approaches are needed. He further states that fund raising research is the only means by which predictive generalizations can be tested and empirically proven to add new theoretical components to fund raising knowledge that can be used by practitioners to guide their daily work.

One stream of research that has dominated the fund raising literature is studies of alumni/ae giving. Over the last three decades a host of researchers have analyzed the characteristics of university alumni/ae donors and compared them to nondonors at public and private institutions in order to better understand who their donors are, what characteristics are common among groups of donors at specific levels of giving, and what traits, if any, they share in common. The end goal of this research is to gain insights and knowledge regarding what

groups of alumni/ae to approach, to suggest an appropriate gift level, and to provide information that can assist in the organization of daily fund raising efforts.

O'Connor (1961) was one of the earliest to study the demographic characteristics of alumni/ae. His study was of Alfred University alumni/ae during the period 1958–60.

The principle significance of O'Connor's research is that it was the first of its kind. O'Connor describes the need for donor versus nondonor research studies in this way:

> One problem that faces alumni directors administering the alumni fund program is the impracticality of considering the use of depth interviews and other motivational research techniques on masses of alumni. Another problem would be to find directors or staff members with such ability or of securing adequate budgets to finance the extensive research operation required. Perhaps one answer will be findings from studies similar to this one, in which factors may be isolated, or group reactions to factors may be measured. This action may allow the alumni to be classified into homogeneous groups, so that the groups can be studied in greater depth for factors of giving and nongiving. (p. 30)

Thirty-four studies were identified by this researcher that potentially had direct relevance to the primary subject of this study. These studies include: Beeler (1982), Blumenfeld and Sartain (1974), Boyle (1990), Connolly and Blanchette (1986), Dahl (1981), Dean (1985), Deel (1971), Deitz (1985), Frederick (1984), Gardner (1975), Haddad (1986), Hall (1967), Harris (1988), Ishoy (1972), Keller (1982), Korvas (1984), MacIssac (1973), Markoff (1978), Marts (1934), McGinnis (1980), McKee (1975), McKinney (1978), McNally (1985), Miracle (1977), Morris (1970), O'Connor (1961), Paton (1982, 1986), Sigelman and Carter (1979), Spaeth and Greeley (1970), Sweeney (1982), Tobin (1984), Wilmoth (1987), Wolshon (1981).

Collectively, these studies investigated to a greater or lesser extent the relationships between financial contributions by institutional alumni/ae to their alma mater and some 17 different factors. Through informal analysis, six groups of factors, characteristics and approaches can be identified from these studies, including the following groups relating to: general demographic variables, collegiate experience variables, alumni/ae experience variables, studies of the impact of intercollegiate athletics on alumni/ae giving, capacity and motivation studies, and other related research.

General Demographic Variables

The following are general demographic factors that have been widely studied as characteristics of alumni/ae donors and nondonors. The findings related to the following six factors will be presented: *age, sex, marital status, number and age of children, income level,* and *location of residence.*

Age. The research on the power of age as a useful variable in predicting alumni/ae gift giving behavior appears to be somewhat contradictory. Three separate studies came to the same basic conclusion relative to the age of donors versus nondonors. Haddad (1986), Korvas (1984), and Miracle (1977) all found that older alumni/ae have both the means and the desire to support their alma maters. They concluded, in general, that older alumni/ae give more than younger alumni/ae.

Two other studies produced results that conflicted with these findings. First, McKee (1975) found that graduates who were among the oldest and youngest cohorts were least likely to make a gift. Those who were middle aged were the most likely to give. And, McNally (1985) found no significant relationship among donors and nondonors related to age.

In light of these findings, it has been suggested that decade of graduation or recency of graduation measures are frequently more useful than actual measures of chronological age of alumni/ae (Dahl, 1981).

Sex. Studies utilizing gender as a discriminating factor among donors and nondonors also have produced contradictory findings. Haddad (1986) and McNally (1985) found that males give more than females. In studies by Keller (1982), Korvas (1984), and McKee (1975), no significant differences between donors and nondonors were found based on gender.

One common problem with using gender as a focus of study is, until recently, many institutions categorized all their gift giving histories under the records of male alumni in the case of married couples. Even if the alumna was married to a non-alumnus, the gift records were often kept under the name of the husband. Because of this widespread bias in the record

keeping procedures at many universities, many studies relying on giving history data base information have not utilized this variable (S. Szady, personal communication, April 9, 1992).

Marital status. Another widely used measure in demographic studies of alumni/ae is marital status. According to the findings of Beeler (1982), Keller (1982), and Korvas (1984), there is narrow consensus that marital status lacks the power to discriminate donors from nondonors. This finding does not appear to run counter to what intuition might suggest, that is, that marital status alone would not be able to explain one's motivation to make a financial contribution.

Number and age of children. The research related to number and age of children is also divided. Beeler (1982) and Korvas (1984) found no significant relationship between donors and nondonors based on the number and age of their children. Haddad (1986) reached a conflicting conclusion. In his study of Butler University alumni/ae, the majority of donors had two children over the age of 18. The majority of these donors also gave more than alumni/ae with any other combination of children. Haddad's research may indicate that alumni/ae with children who are of the age of majority may have more disposable income than those with dependent children.

Personal income and total household income. The findings related to personal income and total household income also appear to be split. Miracle (1977) found the mean household income for donors was higher than for nondonors. Complementary to this finding, Korvas (1984) found that alumni/ae contributions increased as household income levels increased. Relative to personal income, Gardner (1975) concluded that it had little effect on whether an alumnus/a was a donor or nondonor.

Overall, little research using level of income has been conducted due to the difficulty in obtaining this information. The absence of income measures in this type of research is often due to a fear of offending potential donors by asking questions that are too intrusive, (Connolly & Blanchette, 1986; Melchiori, 1988a; Paton, 1982).

Geographic location of residence. Alumni researchers have traditionally hypothesized that alumni/ae who live in close proximity to the institution are more involved in alumni/ae activities and give at a higher level due to their geographic closeness. The conclusion of McKee (1975) supports this traditionally held belief. He discovered that alumni/ae who live closer to the university, either in the same county or state, are more likely to support the institution and participate in alumni/ae activities. In general, McKee concluded, those who live closer provide more support.

In contrast to this finding, Haddad (1986), Keller (1982), and Korvas (1984) found that geographic distance from one's alma mater had no significant effect on donating behavior.

Lastly, Beeler (1982) also found the distance of permanent residence from campus to be an indicator of donor status. However, Beeler concluded that donors live comparatively farther away from campus than do nondonors. Beeler interpreted the findings by saying, "these findings contrast previous research which found alumni loyalty to be a function of closer residential proximity" (p. 98).

The contradictory findings suggest two possible competing explanations. First, alumni/ae who live far away from the institution are more likely to be donors. Second, those alumni/ae who live relatively close to the institution are more likely to be involved and financially supportive.

Summary. General demographic factors (age, sex, marital status, number and age of children, income level, location of residence) have been widely studied as characteristics of alumni/ae donors and nondonors. Table 2.1 summarizes the varying conclusions reached by previous researchers.

Table 2.1. Summary of Research Using General Demographic Variables To Differentiate Donors and Nondonors

Author	*Age*	*Sex*	*Marital Status*	*Number & Age of Children*	*Income*	*Location of Residence*
Beeler (1982)	Not studied.	Not studied.	No significant relationship found.	No significant relationship found.	Not studied.	Donors live farther away.
Haddad (1986)	Older alumni/ae give more.	Males give more.	Not studied.	Donors had two children, age 18 or older.	Not studied.	No significant relationship found.
Keller (1982)	Not studied.	No significant relationship found.	No significant relationship found.	Not studied.	Not studied.	No significant relationship found.
Korvas (1984)	Older alumni/ae give more.	No significant relationship found.	No significant relationship found.	No significant relationship found.	Contributions increased as income levels increased.	No significant relationship found.
McKee (1975)	Middle aged alumni/ae most likely to give.	No significant relationship found.	Not studied.	Not studied.	Not studied.	Those who live closer provide more support.
McNally (1985)	No significant relationship found.	Males give more.	Not studied.	Not studied.	Not studied.	Not studied.
Miracle (1977)	Older alumni/ae give more.	Not studied.	Not studied.	Not studied.	Donors have higher incomes.	Not studied.

Collegiate Experience Variables

Another group of factors that have commonly been utilized in the study of alumni/ae gift giving behavior are those that relate to one's collegiate experience. The following seven factors have been widely utilized in demographic studies focused on alumni/ae giving: *extracurricular activities, degrees from other institutions, graduation date, number of degrees earned and years of attendance, family attendance at the same institution,* and *financial aid.*

Extracurricular activities/student activities. The preponderance of studies including the impact of involvement in extracurricular activities on subsequent gift giving behavior found

that involvement in extracurricular activities (student activities) as an undergraduate was a significant differentiating factor between donors and nondonors. That is, those who were involved are more likely to be donors.

Gardner (1975) and Miracle (1977) found that alumni/ae who were involved in extracurricular activities as students were more likely to be donors than individuals who were not involved in extracurricular activities. Donors averaged significantly more activities than nondonors. Keller (1982) also found that alumni/ae who participated in four or more student activities were more likely to be donors than nondonors. Haddad (1986) found the majority of alumni/ae donors participated in two to four student activities. Donors who participated in two to four activities also gave more frequently. Lastly, Morris (1970) found that donors were more active in student activities overall, and were also more likely to hold an office, than were prospective donors in the category of $10,000 gifts or greater during the $55 million campaign at the University of Michigan.

Three notable exceptions to the otherwise strong positive impact of extracurricular involvement on donor status were Beeler (1982), Korvas (1984), and McNally (1985), who found that there were no significant differences between donors and nondonors based on student activity involvement in their studies.

Degrees from other institutions. Three separate studies included degrees from other institutions in their research. The results of these studies produced slightly different conclusions. Spaeth and Greeley (1970) found that persons who had attended only one college were more likely to make a contribution than those who had attended several. Miracle (1977) found that alumni/ae with an undergraduate degree from another institution were less likely to be donors. Miracle concluded that this finding supports the belief that the undergraduate degree is the most important when considering alumni/ae contributions. Complementary findings were also reported by Beeler (1982) who reported that the number of alumni/ae who sought additional education at another institution subsequent to receiving a bachelor's degree were more likely to be donors than nondonors. Beeler suggested that the undergraduate degree

institution remains the object of its graduates' later philanthropy in spite of their affiliation with other colleges or universities.

Graduation date or decade of graduation. With regard to graduation date or decade of graduation, conflicting findings were reported by the studies included in this review. Haddad (1986), Keller (1982), and Korvas (1984) found that alumni/ae are more likely to become donors as the number of years following graduation increases.

Beeler (1982) found that those alumni/ae who contributed financially to the university were more recent graduates of the institution than those who did not contribute. Beeler concluded, "this finding contrasts prior studies that have indicated that the passage of time alone increases the propensity to give to one's alma mater" (p. 93).

Number of degrees earned/years of attendance. The research related to the number of degrees earned and years of attendance at an institution has produced inconclusive findings. There appear to be almost as many different findings as there have been studies to look at the question of number of degrees and years of attendance. McKee (1975) and Morris (1970) found that the more years alumni/ae attended the university and the more degrees they earned in the process, the greater the likelihood they would be donors rather than nondonors. Miracle (1977) found that more donors received their undergraduate degree than nondonors. A greater proportion of nondonors had received only a graduate degree than donors. Having multiple degrees was not a significant factor for donors or nondonors. Miracle concluded this finding supports the belief held by many development specialists that the undergraduate degree is the most important degree when considering alumni/ae contributions. Beeler (1982) and McNally (1984) found no significant relationship between donors and nondonors related to undergraduate degree earned and graduate degree earned. Korvas (1984) found that those who attended for more years give less. Gardner (1975) found that an alumnus/a who attended Harding College for the entirety of his or her undergraduate program was more likely to be a donor than one who attended other institutions prior to attending Harding.

Family attendance at alma mater. The findings regarding the impact of family attendance at one's alma mater in differentiating donors from nondonors were also conflicting.

Morris (1970) found that donors were more likely to have had their spouse and children attend Michigan while prospective donors (nondonors) were more likely to have had their parents and siblings attend Michigan. Miracle (1977) found that donors had a higher number of family members who attended the university than nondonors. Keller (1982) and Korvas (1984) found that spouse attendance was not a significant predictor of alumni/ae giving.

Financial aid. Beeler (1982) found that the receipt of an institutional scholarship or grant as an undergraduate was a significant predictor of donor status. Those who received financial aid were more likely to be donors than those who did not receive financial aid. The author cited this finding as the first study to test this variable. Korvas (1984) reported that the more alumni/ae felt that the financial aid they received met their needs, the more likely they were to make a financial contribution. Korvas concluded this factor could also be viewed as a measure of satisfaction with undergraduate financial aid. Haddad (1986) found that receipt of an institutional scholarship or grant did not produce a significant difference among donors and nondonors.

Summary. Collegiate experience variables (involvement in extracurricular activities, degrees from other institutions, graduation date, number of degrees earned and years of attendance, family attendance at the same institution, and financial aid) have been widely studied as characteristics of alumni/ae donors and nondonors. Table 2.2 summarizes the varying conclusions reached by previous researchers.

Table 2.2. Summary of Research Using Collegiate Experience Variables To Differentiate Donors and Nondonors

Author	*Extracurricular Activities*	*Degrees from other Institutions*	*Graduation Date*	*Number of Degrees & Years of Attendance*	*Family Attendance*	*Financial Aid*
Beeler (1982)	No significant relationship.	Undergraduate degree most important in donating status.	Recent graduates give more.	No significant relationship.	Not studied.	Significant predictor of donors.
Gardner (1975)	Students who were involved in extracurricular activities are more likely to be donors.	Not studied.	Not studied.	Those who attend same college for entire undergraduate degree more likely to be donors.	Not studied.	Not studied.
Haddad (1986)	Students who participated in two to four activities more likely to be donors.	Not studied.	More likely to be donors as years from graduation increase.	Not studied.	Not studied.	No significant relationship.
Keller (1982)	Students who participate in four or more activities are more likely to be donors.	Not studied.	More likely to be donors as years from graduation increase.	Not studied.	Spouse attendance not significant.	Not studied.
Korvas (1984)	No significant relationship.	Not studied.	More likely to be donors as years from graduation increase.	Those with more years give less.	Spouse attendance not significant.	More that financial aid met their needs, more likely to be donors.
McKee (1975)	Not studied.	Not studied.	Not studied.	More degrees & more years, more likely to be donor.	Not studied.	Not studied.
McNally (1985)	No significant relationship.	Not studied.	Not studied.	No significant relationship.	Not studied.	Not studied.
Miracle (1977)	Students who were involved in extracurricular activities more likely to be donors.	Undergraduate degree most important in donating status.	Not studied.	Alumni/ae with undergraduate degree from another institution more likely to be nondonor. Multiple degrees not significant.	Donors have higher number of family members attend alma mater.	Not studied.
Morris (1970)	Donors more active in extracurricular activities.	Not studied.	Not studied.	More degrees & more years more likely to be donor.	Donors more likely that spouse or children attended alma mater. Nondonors more likely that parents or siblings attended.	Not studied.
Spaeth & Greeley (1970)	Not studied.	Those who attend one college more likely to give.	Not studied.	Not studied.	Not studied.	Not studied.

Alumni/ae Experience Variables

The following passage summarizes the literature relevant to the experiences and activities of individuals following graduation and the impact of these experiences and activities on donor status. For the purpose of this review, these have been categorized and described as *alumni/ae experience variables*. The factors included in this review are: *alumni/ae activities, emotional attachment to alma mater, positive feeling about alma mater,* and *satisfaction with preparation for career.*

Alumni/ae activities. One area where there was a strong consensus among the research findings of the last three decades is the impact of alumni/ae activities as a differentiating factor among donors and nondonors. In general, the findings indicate a strong relationship between involvement in alumni/ae activities and becoming a donor.

Morris (1970) found that the most significant difference between donors and prospective donors of $10,000 or more to the University of Michigan $55 million dollar campaign was participation in alumni/ae activities. Morris concluded that the more alumni/ae are involved in activities with the university, the more likely they are to be donors. In a similar study, Korvas (1984) reported that alumni/ae donors tend to be more involved in alumni office sponsored activities than nondonors. He concluded that there appears to be a direct relationship between level of involvement and financial support. As the level of participation in alumni/ae activities increased, so did financial support.

Markoff (1978), McKee (1975), and Miracle (1977) found that alumni/ae involvement was a significant predictor of donor status, that a greater proportion of contributors participated in college alumni/ae activities than noncontributors. They concluded that participation in alumni/ae activities does positively affect financial support. Haddad (1986) and Keller (1982) found that donors were significantly more likely to have participated in one to three alumni/ae activities than were nondonors. Haddad found that these alumni/ae also contributed more frequently.

Positive feeling about alma mater. Two studies conducted more than a decade apart examined the impact of positive feelings toward the alma mater as a factor to differentiate donors and nondonors. McKinney (1978) and O'Connor (1961) found that positive feelings about the institution did influence alumni/ae giving. Persons with strong positive feelings for their alma mater were more likely to contribute money. In a complementary finding, McKee (1975) found that alumni/ae have more positive opinions about the university than about the alumni/ae program and making financial gifts overall.

Satisfaction with preparation for first job. The only study found that explicitly looked at satisfaction with first job as a differentiating factor was Beeler (1982), who found that donors reported being significantly more satisfied with their undergraduate preparation for the first job than nondonors.

Emotional attachment to alma mater. The findings among researchers studying the impact of emotional attachment to one's alma mater in differentiating donors and nondonors were conclusive. This review of the literature found three separate studies that reached substantially the same conclusion and an additional study with a complementary finding.

Spaeth and Greeley (1970) found that persons who reported that they were emotionally attached to their college were more likely than others to make a contribution. They concluded that the relationship between college characteristics and contributions suggest that alumni/ae reactions to their college may be related to their financial generosity. In a 1975 study, Gardner also found that donors have a stronger emotional attachment to their alma mater than nondonors. Emotional attachment to alma mater was found to be the strongest predictor of donor status among the 14 variables used in the study by Beeler in 1982.

Summary. Alumni/ae experience variables (alumni/ae activities, emotional attachment to alma mater, positive feeling about alma mater, and satisfaction with preparation for career) have been widely studied as characteristics of alumni/ae donors and nondonors. Table 2.3 summarizes the varying conclusions reached by previous researchers.

Table 2.3. Summary of Research Using Alumni/ae Experience Variables To Differentiate Donors and Nondonors

	Involvement in Alumni/ae Activities	*Positive Feeling about Alma Mater*	*Satisfaction with First Job*	*Emotional Attachment to Alma Mater*
Beeler (1982)	Not studied.	Not studied.	Those with higher satisfaction are more likely to be donors.	Those with emotional attachment are more likely to be donors.
Gardner (1975)	Not studied.	Not studied.	Not studied.	Those with emotional attachment are more likely to be donors.
Haddad (1986)	Donors more likely to have participated in one to three alumni/ae activities.	Not studied.	Not studied.	Not studied.
Keller (1982)	Donors more likely to have participated in one to three alumni/ae activities.	Not studied.	Not studied.	Not studied.
Korvas (1984)	Donors are more likely to be involved in alumni/ae activities. As involvement increases, so does support.	Not studied.	Not studied.	Not studied.
Markoff (1978)	Involvement is a strong predictor of donor status.	Not studied.	Not studied.	Not studied.
McKee (1975)	Involvement is a strong predictor of donor status.	Positive feelings of alumni/ae do not necessarily translate into donor status.	Not studied.	Not studied.
McKinney (1978)	Not studied.	Positive feelings influence alumni/ae giving. Those with positive feelings were more likely to give.	Not studied.	Not studied.
Miracle (1977)	Involvement is a strong predictor of donor status.	Not studied.	Not studied.	Not studied.
Morris (1970)	The more alumni/ae activities involved in, the more likely to be a donor.	Not studied.	Not studied.	Not studied.
O'Connor (1961)	Not studied.	Positive feelings influence alumni/ae giving. Those with positive feelings were more likely to give.	Not studied.	Not studied.
Spaeth & Greeley (1970)	Not studied.	Not studied.	Not studied.	Those with emotional attachment are more likely to be donors.

Benefits and Limitations to Demographically Based Studies of Alumni/ae

The research just described has explored the effects of various demographic variables in differentiating alumni/ae donors from nondonors. This research has been a major emphasis in the fund raising literature. It is worth noting that many of the differences in the findings of the literature reviewed in this chapter may be due to factors such as differences in research methodology, operational definitions, quality of data, and coding procedures. Simply stated, since each study in this review did not use a standard form of measurement, comparisons among these studies should be viewed with some caution. However, from the preceding review, it is clear that a number of significant predictor variables have been identified in general demographic, collegiate experience, and alumni/ae experience contexts. In particular, factors such as: income level, number and age of children, involvement in extracurricular activities, decade of graduation, number of degrees and years of attendance, degrees from other institutions, receipt of financial aid, involvement in alumni/ae activities, positive feelings about alma mater, and emotional attachment to alma mater appear to be significant predictors of donor status. The impact of other factors on donor status are less clear, however, they may warrant further investigation. These variables include: geographic location of residence, family attendance at alma mater, and satisfaction with preparation for first job. Each of the previously mentioned variables has a foundation in the literature that would appear sufficient to warrant inclusion in this and future studies.

In reviewing much of the same research, Boyle (1990) concluded,

> Although none of the preceding studies produced major findings that ran counter to conclusions drawn from the conventional alumni giving literature, as a group they are useful to affirm certain common characteristics of alumni donors. The majority of the studies found that alumni donors were: more involved in student activities as undergraduates, less likely to have transferred into the institution, more involved in alumni association activities after graduation, and held more positive attitudes toward their alma maters. (p. 10)

While many of the variables studied in the demographic research on alumni/ae have proven to be strong influencing measures of donating status, the descriptive nature of most of

these studies has limited their value for actually understanding alumni/ae gift giving decisions and modeling or predicting actual gift giving behavior. In reviewing past research, Leslie and Ramey (1988) concluded that past research has not focused on the factors that underlie the gift giving decisions of donor groups.

Wilmoth (1987) posited that, while comparisons of donors and nondonors can help to identify the characteristics of likely donors, there is generally little the fund raising practitioner can do to manipulate these characteristics. Wilmoth further posited that a predictive, rather than a descriptive, orientation on the part of the researcher contributes to a knowledge base which can be empirically tested and refined.

Lastly, Harris (1988) observed that previous fund raising research has focused on the characteristics of individuals who are donors or nondonors to a particular institution or type of institution. Harris points out that while these studies continue to provide a valuable perspective from which to work, they are limited because they lack fund raising models from which to base subsequent research. Harris (1988) writes, "No previous researchers have attempted to develop a predictive model of giving. A predictive model would be useful because it would provide a point of departure for future studies" (p. 13).

Therefore, the research in this review identified many factors that may be significant in exploring alumni/ae gift giving decisions. The work of Harris (1988), Leslie and Ramey (1988), and Wilmoth (1987) suggests that future research should be predictive in its orientation, explain the factors that underlie actual gift giving decisions, and model alumni/ae gift giving behavior.

Impact of Intercollegiate Athletics on Alumni/ae Giving

Fund raisers, presidents, and athletic directors alike have long believed that a winning football or basketball team will translate into larger numbers and size of gifts from college alumni/ae. The literature on this subject suggests that this commonly held belief may, in fact,

be untrue. Frey (1985) posits that the conventional wisdom being tested by much of the research on the impact of athletic success, particularly in football and basketball, is that winning teams will increase contributions from alumni/ae supporters. Other benefits Frey identified were: (1) the visibility that winning teams provide attracts new students and strengthens alumni/ae ties, and (2) the creation of a sense of unity among the campus community that comes from seeing their athletic teams win.

In a comprehensive look at the literature of the impact of intercollegiate athletics on voluntary financial contributions from 1934 to 1984, Frey (1985) came to the conclusion that there is no relationship between athletic success and any measure of voluntary financial support.

Sigelman and Carter (1979) provide insight into the historical as well as empirical impact of big time (NCAA Division 1) intercollegiate athletic performance on alumni/ae giving. Sigelman and Carter propose a possible origin of the strong motivation to win for one's alumni/ae in intercollegiate athletic competition. They trace the origins of this movement to the popular 1940 movie, *Knute Rockne—All American*. In the movie, Notre Dame's Knute Rockne gives a fire and brimstone speech to the Fighting Irish football team to "win one for the Gipper," former Notre Dame football player George Gipp. Sigelman and Carter point out that while "the Gipper" is no longer with us, the motivation of college football and basketball teams to win for their alumni/ae continues.

Sigelman and Carter posit that the continued emphasis on winning in current day athletic contests is derived less from altruistic motives and more from the personal benefits student athletes gain in establishing a national reputation for themselves which may enable them to enter professional athletics, as well as the desire of coaches to build job security or a reputation that would enable them to move on to better coaching assignments.

The earliest study of the impact of athletic performance on fund raising can be traced to an often cited study by Marts (1934). Marts focused on the efforts of colleges attempting to use football success to gain national visibility to increase donations. Marts' study contained a

control group of 16 colleges without an emphasis on football and 16 colleges that had built strong football programs. Marts found that the total endowments of the colleges not emphasizing football grew faster than colleges with an emphasis on football.

Empirically, Sigelman and Carter (1979) analyzed institution-by-institution alumni/ae annual giving records for 138 NCAA Division 1 institutions with data collected by the Council for Aid To Education and institution-by-institution analysis of NCAA football and basketball records, both for the period 1961–1976. They concluded,

> We can summarize our findings by stating that according to a number of different statistical criteria we have found no support for the thesis that alumni giving is connected to athletic performance. (p. 291)
>
> Our statistical analysis has revealed that there is simply no relationship between success or failure in football and basketball and increases and decreases in alumni giving. (p. 293)

Frederick (1984) found that, based on statistical results from a national study of 81 public universities during the period of 1965 to 1979, there was no relationship between football success and the percentage of alumni/ae contributing to the university's annual fund, and there was no relationship between football success and average gift to the annual athletic fund.

Frederick (1984) also found an interesting trend among average gift size such that, "the average gift to the annual fund for those schools with football records deemed not successful was larger than the average gift to the annual fund for those schools with football records deemed quite successful" (p. 110).

The findings of Frederick (1984), Frey (1985) Marts (1934), and Sigelman and Carter (1979) appear to be conclusive. In his review of the literature, Dahl (1981) aptly summarized the relationship of athletic performance with alumni/ae fund raising,

> It should be noted that although the preponderance of the evidence concerning this particular aspect of alumni giving is against a general relationship with athletic performance, the popularly assumed direct relationship could be in effect for an institution on either an episodic or continuing basis. However, it would appear that in the aggregate, alumni giving is not a systematic function of institutional athletic performance. (p. 20)

Summary. While there has been a long standing belief that success in intercollegiate athletic competition, particularly in football and basketball, will increase alumni/ae financial contributions, empirical studies of this phenomenon indicate that no such relationship exists.

Capacity and Motivation Studies

A promising body of research has focused on donor capacity to give and motivation to give as central considerations in alumni/ae gift giving decisions. A donor's capacity to give is the combination of factors, both positive and negative, that result in one's ability to make a financial donation. Positive factors would include items such as level of income and educational attainments. Negative factors would be financial commitments that limit disposable income, such as the cost of sending a child to college. Motivation to give has to do with a priori willingness to contribute or those factors that create or influence the desire to give. Connolly and Blanchette (1986), Melchiori and Szady (1987, 1988), Paton (1982, 1986), and Volkwein, et al. (1989) have taken different approaches to the use of these constructs in studying fund raising outcomes.

Paton (1986) utilized an economic perspective to study the influences of capacity to give and motivation (predisposition) to give to determine fund raising costs versus returns. He concluded that capacity to give is the more influential of the two constructs, because a high level of capacity overwhelms the influence of motivation. This conclusion was based on the theory that the potential for a major gift justifies a larger cost for cultivation and solicitation (to increase motivation) when a prospective donor's motivation to give is low.

Paton compared the relationship between expenditures and gift revenues for two institutions, one with low donor motivation and another with high donor motivation. He found that high donor motivation causes a significantly greater response to initial fund raising appeals. Paton suggested that motivation determines the relationship between expenditures

and gift revenues. He further suggested that motivation determines the magnitude of giving that reflects a priori donor motivations sufficient to induce giving in response to modest fund raising efforts. This motivation to give forms the foundation of giving upon which more ambitious cultivation and solicitation efforts must build (Paton, 1986).

Regarding capacity to give, Paton (1986) suggested that, independent of motivation to give, a prospective donor's giving capacity strongly influences the frequency and amount of contribution. Paton noted a distinction between effects of motivation to give and capacity to give. Motivation to give determines the initial return for modest fund raising expenditures, while capacity to give determines the rate of return for expenditures to attain gifts larger than what the donor was already motivated to give. Paton (1982) described these as the difference between *predisposed giving* and *persuaded giving*. When the donor's level of giving reaches a theoretical or real limit, the rate of return for additional fund raising expenditures drops dramatically (Paton, 1986). In simpler terms, the marginal cost of dollars raised beyond the donor's capacity to give increases fund raising costs.

In his earlier work, Paton (1982) suggested a significant conceptual refinement in the study of capacity to give and motivation to give on alumni/ae giving. He reported empirical evidence indicating the effects of interaction between measures of motivation and measures of capacity used in his study. This phenomenon might be explained as follows. The financial capacity to give alone may not be enough to cause an individual to make a donation to his/her alma mater. Likewise, an individual may possess the motivation to make a gift, but lack the ability to do so. However, the joint effects of capacity to give and motivation to give may result in the decision to give.

Paton (1986) posited that an interaction does exist between capacity to give and motivation to give, through which capacity either promotes or inhibits the effect of motivation. In Paton's 1982 study and his subsequent research, he did not include interactions in his model of fund raising performance. In describing the difficulties of including the effects of the interaction in his model, he writes, "Although the interaction model is theoretically and

conceptually useful, methodological obstacles make estimating interactions quite impractical" (p. 128).

An important component of Paton's research, then, was the identification of an interaction variable of capacity to give and motivation to give. Paton, however, viewed this interaction solely from the perspective of expected return for increased investment in prospective donors who have a high capacity to give. Paton's two studies provided promising insight into improving fund raising performance, but they did not adequately explain the factors underlying the actual gift giving decisions of alumni/ae donors and prospective donors. Paton (1982) posited that for colleges conducting ambitious alumni relations and fund raising programs, the specification of an interaction effect may result in a more accurate estimate of fund raising performance than was reported in his study.

Connolly and Blanchette (1986) built on Paton's 1986 study and used the constructs of capacity and motivation in a study of their influence on alumni/ae giving. They studied alumni/ae from Wesleyan University, a private liberal arts college in Connecticut. They grouped alumni/ae in their study by four demographic categories: class year, sex, geographic region and career occupation. These categories represented independent variables that influence alumni/ae gift giving behavior. Their research was based on two assumptions specifically related to the influence of capacity and motivation on alumni/ae gift giving behavior:

> (1) motivation should decline steadily as alumni grow older because they identify less with the institution than younger alumni, and
>
> (2) capacity should increase as alumni develop their careers, i.e., alumni in earlier classes should be able to give more than more recent graduates. (p. 74)

They hypothesized that motivation and capacity run opposite to one another. One's motivation to give would be at its highest level at the time of graduation and then decrease as the time since graduation gets longer. One's capacity to give would be at its lowest level at the time of graduation and then increase as the time since graduation increases. Their study of giving by class year suggested that their findings should show alumni/ae giving rising steadily

as the number of years since graduation increases until a plateau is reached, and then giving should decline over time.

To test their assumptions regarding capacity and motivation relative to graduation date, a survey was sent to alumni/ae from the classes of 1945 to 1980. In the survey alumni/ae were asked how they felt about substantially increasing their annual gift. Connolly and Blanchette (1986) reported that "the percentage of each class responding positively to this question reveals a steady decline in positive responses from the class of 1980 to the class of 1945" (p. 74). They interpreted the results as "strong support" for their assumptions regarding alumni/ae giving and graduation date.

One significant limitation to the research done by Connolly and Blanchette (1986) is the use of indirect or proxy measures for the constructs in their study. Like Paton, they were unable to use any direct measure of income in their study. As a result, they had to rely on career occupation as a proxy measure for income. Connolly and Blanchette (1986) describe their dilemma this way,

> Wealth can in theory be quantified, but in practice few alumni are willing to provide information about their income and net worth. Indirect measures, such as the demographic characteristic of career occupation, must therefore be developed for this independent variable. (p. 71)

Dunn (cited in Connolly & Blanchette, 1986) suggested that "a more refined approach to modeling alumni giving behavior is needed to help in class-by-class planning, which lies at the heart of actual fund raising operations" (p. 79). Connolly and Blanchette (1986) identified that their research design needed further development. Specifically, they cited the need to develop better measures of alumni/ae capacity and alumni/ae motivation.

While Connolly and Blanchette's 1986 study had to rely on extremely indirect measures of wealth, which, by their own reports were weaker than they would have liked, their application of capacity and motivation in the study of alumni/ae gift giving points to the overall usefulness of these constructs in predicting alumni/ae gift giving decisions. These

findings have also made a valuable contribution to the literature by providing added insight into the influence graduation date may have on alumni/ae gift giving behavior.

Melchiori and Szady (1987,1988) made a significant contribution to the literature by elaborating on the importance, measurement, and application of variables relating to capacity to give and motivation to give. They developed a conceptual approach to profiling donors and introduced a system for ranking prospective donors by giving potential, *The Melchiori/Szady Prospect Ranking Model.* The goal of the ranking model was to compare the characteristics of an institution's alumni/ae population with those of donors in various gift giving levels (high end to low end). The purpose of this prospect ranking system was to split alumni/ae into differentiated groups with similar characteristics, or—in marketing terms—to segment the alumni/ae population. The ranking model extended the work done by Connolly and Blanchette and Paton by ranking donors by their capacity to give. The Melchiori/Szady ranking model was principally applied to those alumni/ae with the potential to be major gift givers—those who could give more than $25,000—however, they suggested that this ranking approach could also be applied to annual givers, persistent nongivers, and sporadic givers (Melchiori, 1988b, p. 60).

The model ranked all alumni/ae based on the characteristics they possessed that were similar to those of alumni/ae already making major gifts to the institution. These alumni/ae were then grouped together according to the strength of those characteristics. Group rankings were determined by mean values, which were considered an expression of the degree to which the individual had characteristics similar to those of the model group. A computer program called SEARCH in the OSIRIS . IV statistical package was employed to generate binary splits which produced a tree with 29 branches. The total number of alumni/ae respondents was placed in a hierarchy of 29 ranks, with those in rank 1 most closely resembling those making major gifts and those in rank 29 farthest from those making major gifts.

Melchiori and Szady (1987,1988) made a significant contribution to the literature of alumni/ae giving through the introduction of their prospect ranking model. Their model has

elaborated upon prior descriptive studies using demographic information and proposed a system to segment prospective donors (nondonors) based on characteristics they share with groups of donors at differing levels of giving. Their work points to the utility of demographic information in guiding and developing strategy and tactics for raising funds among different groups of alumni/ae.

Volkwein et al. (1989) elaborated upon the work of these prior studies and proposed a structural model of alumni gift giving behavior. They attempted to build a gift giving model that would explain the relationships among a number of key alumni constructs. These constructs included: demographic background, academic and social integration, capacity to give, motivation to give, and alumni gift giving behavior. The model was described in this way:

> Gift giving behavior is viewed as a function of both capacity and motivation. However, the personality and values which produce motivation, and the socioeconomic status and achievements which produce capacity also are the products of background factors and prior experiences. Academic and social integration and demographic characteristics are considered primary influences on the subsequent socioeconomic attainments of college graduates and their willingness to give. (Volkwein et al., 1989, p. 6)

The authors concluded their research by proposing that the model should be tested with a causal modeling analysis that can handle models with both latent variables as well as measurement variables, measurement errors, and reciprocal causation.

While the Volkwein et al. (1989) model was never tested empirically due to a problem in data collection, it does, however, propose a valuable foundation for building and testing theoretical relationships that influence alumni/ae gift giving behavior. A major omission from the model was the effect of the interaction of capacity to give and motivation to give on alumni/ae gift giving behavior.

The research of Connolly and Blanchette (1986) and Paton (1982, 1986) points to the fact that there is good reason to believe capacity to give and motivation to give do interact, yet no study has explicitly examined or modeled the effects of this interaction on alumni/ae gift giving behavior. Therefore, the interaction of these two concepts, capacity to give and motivation to give, appears to be an unexplained component in alumni/ae gift giving decisions.

The findings of this related research point to the need for a study that can not only explicitly model and test the predictive power of capacity to give and motivation to give as direct influences on alumni/ae gift giving behavior, but also establish the direct effects of the interaction of capacity to give and motivation to give on alumni/ae gift giving behavior. This study proposes to do just that.

Summary. During the last decade a series of researchers have taken different approaches to the study of alumni/ae gift giving behavior using the constructs of capacity to give and motivation to give. Paton (1982, 1986) studied these constructs from an economic perspective. Connolly and Blanchette (1986) studied them from a perspective of graduation date. Melchiori and Szady (1987, 1988) studied them from a market segmentation perspective. And Volkwein et al. (1989) studied them from a theoretical perspective. Collectively, the work of these researchers suggests that there is good reason for further research using the constructs of capacity to give and motivation to give to build and test a model of alumni/ae gift giving behavior. This prior research further supports the need for a study to explicitly model the effects of the interaction of capacity to give and motivation to give in predicting alumni/ae gift giving behavior. This is the purpose of the proposed model that will be presented in the next section of this chapter.

Proposed Model of Alumni/ae Gift Giving Behavior

This study will develop a conceptual model and approach for predicting alumni/ae gift giving behavior. The central problem this study will address is the currently unspecified relationship between Capacity to Give, Motivation to Give, and their Interaction in determining Alumni/ae Gift Giving Behavior. This study will expand upon prior research from simple linear models to the development of an interactive structural equation model using a partial least squares analysis.

This study will advance the theoretical and empirical study of alumni/ae gift giving behavior. In addition, the proposed model will make several important theoretical contributions to the alumni research and fund raising research literature. First, the application of a model of alumni/ae gift giving behavior will provide a method to operationalize the study of predicting alumni/ae gift giving behavior. Second, the use of second generation multivariate analysis techniques will advance the study of fund raising research. Third, the model will be tested in a situation using simultaneous equations modeling which allows a test of the whole model, as opposed to testing the different relationships independently.

The result of this research will be to provide additional insight into the variables that influence alumni/ae gift giving behavior. This information has the potential to directly influence the ways in which development practitioners tailor their fund raising efforts and focus their time and resources on constituent markets. This result can be used to enhance the strategic allocation of resources to assist institutions in achieving a more optimal return on their fund raising investments. This type of information may be particularly useful to the University of Michigan in light of the University's September 18, 1992, announcement of a five-year capital campaign to raise a record $1 billion, the largest campaign goal for a public university in the United States.

Conceptual model and approach. A latent variable model of Alumni/ae Gift Giving Behavior will be developed to test the hypothesized influences on alumni/ae giving. The Volkwein et al. (1989) model used academic and social integration and demographic background as variables. The proposed latent variable model of this study separates the academic and social integration construct into two variables, (1) Academic Integration, and (2) Social Integration. The proposed model also eliminates demographic background as a construct with the rationale that the whole model is built on demographic information and the inclusion of demographic background as a latent variable construct is redundant. The proposed latent variable model also adds an additional latent construct, the Interaction of Capacity to Give Index and Motivation to Give Index. The proposed model suggests that Capacity to Give,

Motivation to Give, and the Interaction of Capacity to Give Index and Motivation to Give Index all influence Alumni/ae Gift Giving Behavior. Seven hypotheses will be tested in this study to determine the power of the measurement variables selected to reflect the latent variable constructs in the model and to test the quality of the latent variables used to predict Alumni/ae Gift Giving Behavior.

Other Related Research

In the last 10 years, three noteworthy studies have analyzed alumni/ae giving from uniquely different perspectives. A review of these studies is provided to give context to this study and to highlight differing approaches to the study of alumni/ae giving. The first explores alumni/ae giving in the context of implications for marketing; the second utilizes an ethnographic approach to the study of how a major research university develops and communicates its fund raising goals to alumni/ae; and lastly, a study utilizing a causal model and five case studies to explore the impact of college quality on alumni/ae giving.

Sweeney (1982) looked at the problem of establishing and maintaining alumnae voluntary support in a college of nursing from a marketing orientation. Utilizing a perspective of marketing for non-profit organizations developed by Kotler (1975), Sweeney surveyed alumnae for needs, perceptions, preferences, and satisfactions with a college of nursing. She also collected demographic and attitudinal information related to most variables collected in other studies contained in this review. A sampling of these included: income level, student activity involvement, alumnae involvement, number of degrees, satisfaction with career preparation, etc. Sweeney hoped that the information gained from the study would provide useful data to support specific interventions designed to promote and encourage alumnae support.

Based on her research, the author offered many interesting insights in her final recommendations:

> The college needs to cultivate, develop, and educate current students on the need for and role of alumnae financial support if they are to make the transition to supportive alumnae donors;
>
> An awareness of the college's financial needs must begin with and continue throughout the educational experience if socialization and sensitivity toward these needs is to be realized. Projects or activities that enhance the educational research and service missions of the college and that are made possible because of privately contributed money need to be advertised and given more visibility;
>
> Current students must be helped to appreciate not only the impact of voluntary financial contributions on the college's programs and services, but also the benefits received if they are to internalize and value donor behavior as alumnae;
>
> The college needs to continue to survey needs, perceptions, preferences, and satisfactions of its current students as well as alumnae if it wishes to be a responsive organization with regard to programs, policies, procedures, and services. (p. 210)

In addition to the unique marketing context in which the study was framed, only alumnae were surveyed. The study of female donors is a topic that has not been given wide coverage in the literature.

Tobin (1984) presented a methodologically diverse perspective on the study of alumni/ae fund raising. She conducted a year long ethnographic study of how Stanford University developed and communicated its fund raising goals to alumni/ae of the University. The author described the methodology of the study this way,

> This twelve month ethnographic study examines ways in which messages reflecting the fund raising agenda of a major research university are developed and expressed. The study describes the written texts, the variety of scripts used in oral communication and the settings or vehicles chosen to make these institutional statements. Data include artifacts and field notes generated from participant observation and interviews with fund raising staff. (p. ix)

Tobin describes how language, symbols and setting are used to build an individual's sense of affiliation with, and responsibility for an academic institution. A major limitation pointed out by Tobin is that the study focuses on the implementation of fund raising appeals and not on the impact of these appeals. The outcomes of the research, while shedding light on the work of annual fund professionals, do not appear to give fund raising professionals anything that would improve the practice of annual fund work. However, insights of the author provide

interesting reading and food for thought for researchers in the formative stages of developing a research focus related to fund raising and alumni/ae giving.

Boyle (1990) proposed that the three decades of research on alumni/ae voluntary support of their alma maters provide a consensus on the importance of this topic. Boyle stated that alumni/ae giving is of greater importance than just providing higher education institutions with another source of income. Boyle hypothesized a broader context for the study of alumni/ae giving, the study of the impact of institutional quality upon alumni/ae giving participation rates at liberal arts colleges. The principal goals of Boyle's research were to:

> ...determine the relative influence of institutional quality and resource indicators, particularly those involving academic quality, upon alumni giving participation rates. It is hypothesized that institutions providing higher quality academic experiences to their students will receive greater financial reciprocity, in the form of contributions, during annual fund appeals to their graduates.
>
> A complementary goal of the research is to determine what other institutional influences, such as the college social and extracurricular life and fund raising methods, may be associated with the propensity of alumni to donate. (p. 3)

In his implications for future research Boyle (1990) suggested,

> In addition to the correlational analysis and case study methods used survey research could produce useful alumni attitude information to confirm or refute the findings presented here. A systematic survey of alumni attitudes toward giving, loyalty, and college quality perceptions (evenly divided between alumni donors and nondonors) could produce rich new data by which to test earlier anecdotal findings. (p. 210)

One significant aspect of Boyle's study is the use of of path analysis to test a hypothesized causal relationship of college resources and quality indicators on alumni/ae giving participation rate per college. Boyle's model tested the effect of four measures of college resources (endowment per student, educational and general budget per student, college enrollment, and age of the college) on five college quality indicators (percentage of students going to graduate or professional schools, average S.A.T. scores of freshmen, student per faculty ratio, percentage of faculty with doctorates, number of library books per student). The quality indicators were then hypothesized to have a more direct impact on the alumni/ae participation rate (percentage of alumni/ae who give to annual solicitations and average amount of those gifts). Secondary data drawn principally from the published reports of the

Council For Aid To Education during the years of 1976–1986 were utilized to test the model. Then path analysis was conducted using a multiple regression routine to calculate the direct and indirect effects on alumni/ae giving participation rate. The author stated that "the model sought to improve the understanding of the theory of alumni giving and to establish direction for the exploratory process in the qualitative component of the study" (p. 51).

The results of Boyle's quantitative analysis were then used to guide interviews and subsequent case studies of the fund raising procedures at five liberal arts colleges. While the proposed model had a number of limitations and could not explain many of the findings reported from the case studies, it does point to the value of causal models in the study of fund raising research and the use of secondary data analysis in the study of alumni/ae gift giving behavior.

Summary. Three noteworthy studies of the last ten years have been presented to highlight the differing methods researchers have used to study alumni/ae giving. Sweeney (1982) explored alumnae giving in a marketing context. Tobin (1984) studied the ways fund raising goals are developed and communicated to alumni/ae using an ethnographic methodology. Lastly, Boyle (1990) studied the impact of institutional quality on alumni/ae giving in liberal arts colleges using a combined analysis linking case studies and a path analysis. Each study proposed and identified useful dimensions of alumni research.

CHAPTER III

RESEARCH DESIGN, CONCEPTUAL MODEL, AND HYPOTHESES

Introduction

The purpose of this chapter is to describe the research design, the constructs underlying this study's proposed model of Alumni/ae Gift Giving Behavior, and the hypotheses which relate the constructs to one another.

The research design used in this study will be a causal model analysis using cross sectional data. The theoretical assumptions that guided the development of the causal relationships that will be tested in this study were based on the review of the literature presented in chapter 2. The derivation of constructs section that follows will specifically identify the key theoretical findings from prior research that led to the causal model analysis that will be used in this study.

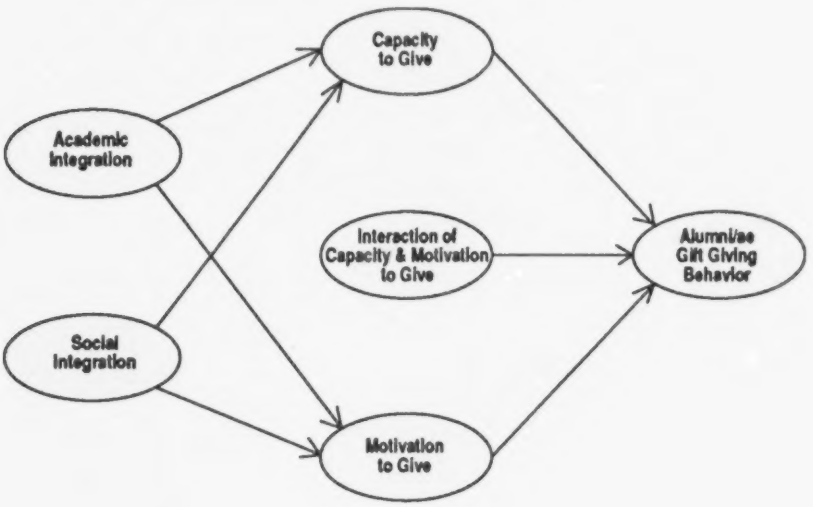
The constructs in this model are derived from the literature review described in chapter 2. Specifically, this study's proposed model depicts Alumni/ae Gift Giving Behavior as a function of (1) Capacity to Give, (2) Motivation to Give, and (3) the Interaction of Capacity to Give Index and Motivation to Give Index as expressed by an alumnus/a respondent (see Figure 3.1). The degree of Capacity to Give, Motivation to Give, and their Interaction is a function of the respondent's Academic Integration and Social Integration.

This chapter will first describe the derivation of the six constructs, including a brief discussion of the separation of the academic and social integration construct described in the Volkwein et al. (1989) model into two distinct components: (1) Academic Integration—factors deemed significant in academic achievements, and (2) Social Integration—factors deemed

significant in social fit and involvement during the time frame a degree was being earned. The proposed model also eliminates the demographic background construct proposed by Volkwein et al. (1989) with the rationale that demographic information, while providing latent construct indicators, does not itself constitute a latent variable. Then, information on how these constructs relate to one another and to Alumni/ae Gift Giving Behavior will be presented.

Finally, hypotheses will be presented to show the predicted relationships between constructs. Seven hypotheses will be tested in this study to determine the quality of the latent variables used to predict Alumni/ae Gift Giving Behavior. It is important to note that these hypotheses will be tested as part of the whole model. This approach, common to the Partial Least Squares (PLS) method of structural equations modeling, explicitly considers the interaction of theory and data. Figure 3.3 at the end of the chapter shows the whole model, including latent and measurement variables.

Figure 3.1. Conceptual Model of Alumni/ae/ae Gift Giving Behavior



Derivation of the Constructs

As noted in chapter 2, the work of Volkwein et al. (1989) considered several factors which may be correlated with, or act as antecedents to, alumni/ae gift giving decisions, the first of which was described as demographic background. Measures such as socioeconomic status, graduation date, gender and ethnicity were used to reflect demographic background. In this study, this construct has been eliminated because it constitutes a potentially unrelated class of measurement variables rather than a true latent variable, and inclusion of this construct would be inappropriate. Additionally, since the entire latent variable model is built on demographic information, the inclusion of a specific demographic construct is redundant.

Volkwein et al. (1989) measured variables such as major field of study, grade point average, number of years at the institution, extracurricular activity involvement, and family attendance at the institution to reflect academic and social integration. In this study, this construct has been separated into two individual constructs: (1) Academic Integration (measured by variables such as number of degrees earned, years of attendance, impact of financial aid, graduation and graduation date, and degrees from other institutions) and, (2) Social Integration (measured by variables such as involvement in extracurricular activities and family member attendance at the same institution). The separation of the construct proposed by Volkwein et al. (1989) into two individual constructs is more representative of the differing influences on one's collegiate experience and subsequent Motivation to Give and Capacity to Give. Academic Integration and Social Integration, then, are the immediate antecedents to Motivation to Give and Capacity to Give of an alumnus/a. Based on the research of Connolly and Blanchette (1986), Melchiori and Szady (1987, 1988), Paton (1982, 1986), and Volkwein et al. (1989), this study will utilize Capacity to Give and Motivation to Give as central constructs that have a direct influence on Alumni/ae Gift Giving Behavior. The effects of Academic Integration and Social Integration on Alumni/ae Gift Giving Behavior are mediated by Capacity to Give and Motivation to Give, as well.

The research of Paton (1982, 1986) has determined that Motivation to Give and Capacity to Give are thought to interact, and this interaction also influences alumni/ae gift giving decisions. To date, no research has studied the impact of this interaction as a direct influence on Alumni/ae Gift Giving Behavior. This study proposes to expand the work of prior studies to explicitly model and test the direct influence of the Interaction of Capacity to Give Index and Motivation to Give Index on Alumni/ae Gift Giving Behavior. Each of these components in this proposed model of Alumni/ae Gift Giving Behavior is discussed below.

Academic Integration

The research reviewed in chapter 2 identified a number of factors that lead to satisfaction with one's collegiate experience. Gardner (1975) and Spaeth and Greeley (1970) asserted that alumni/ae who attended the same institution for all four years of an undergraduate degree were more likely to make a gift than those who attended less (e.g., transferred into the institution). Attendance at more than one institution also has been found to affect gift giving outcomes. Spaeth and Greeley (1970) reported that those attending more than one institution were less likely to give to any of the institutions. This may have resulted from divided loyalties to the institutions, therefore, attendance at another institution was regarded as a negative source of satisfaction. The level of degree earned also influences satisfaction. Beeler (1982) and Miracle (1977) identified the undergraduate degree as the most significant in later decisions regarding alumni/ae philanthropy such that the undergraduate institution tended to be the focus of later gift giving. We can infer that this is a result of satisfaction based on a high level of social integration as a student.

Other sources of satisfaction that influence gift giving decisions cited in chapter 2 include: financial aid, graduation date or decade of graduation, number of degrees and years of attendance. Beeler (1982) and Korvas (1984) found that financial aid is a significant variable in differentiating alumni/ae donors from nondonors. Their research found that those who

received aid or perceived that the aid they received met their needs were more likely to be donors than nondonors. Connolly and Blanchette (1986) found that decade of graduation influences gift giving. Spaeth and Greeley (1970) cited the turbulent decade of the 1960s as one period that produced predominantly nondonors due to student unrest about the war in Vietnam. Connolly and Blanchette (1986) further theorized that recent graduates are more motivated to give because their affiliation or involvement is more recent. McKee (1975) and Morris (1970) found that number of degrees and years of attendance are strong influences on gift giving decisions such that the more degrees students earned, and subsequently the more years spent at the institution, the more likely they were to be donors. It is logical to infer that repeat attendance—or purchase—is a form of consumer satisfaction with the products a particular institution of higher education has to offer.

This study will explicitly model and test the impact of student satisfaction with the academic experience as the latent variable construct, Academic Integration. This study will model and test the effect of Academic Integration on Alumni/ae Gift Giving Behavior through Capacity to Give and Motivation to Give.

Social Integration

The research reviewed in chapter 2 highlighted a number of factors that affected individuals' past satisfactions with their alma mater due to their social experiences as students. Factors such as involvement in student activities and organizations and the attendance of family members at the same institution were identified as sources of satisfaction.

A host of researchers have found that involvement in extracurricular activities has a major impact on students' subsequent gift giving behavior. Student development theory suggests that involvement in student organizations is an important part of the undergraduate experience (Kuh, Schuh, Whitt, & Associates, 1991). Student groups provide a significant social network for making friends and becoming a part of a group. College attendance has long been identified

as a period of exploration and experimentation and the passage to adulthood. The result of these experiences is the formation of personal attitudes and identity, and often, lifelong friendships. Social Integration may also be the result of familial influences before and during attendance at an institution of higher education. Examples of familial influences would include attendance of one's father, mother, or an older brother or sister at the same institution, or meeting one's spouse at their alma mater.

This study will explicitly model and test the impact of student satisfaction with the collegiate experience as the latent variable, Social Integration. The study will model and test the effect of Social Integration on Alumni/ae Gift Giving Behavior through Capacity to Give and Motivation to Give.

Capacity to Give

The research suggests that both positive and negative factors influence one's Capacity to Give. Connolly and Blanchette (1986), Paton (1982, 1986), and Volkwein et al. (1989) identified that levels of income and net worth are effective measures of the Capacity to Give construct. However, these researchers also determined that they could not collect this information for fear of offending donors and prospective donors by asking questions that were too intrusive. As a result, these studies utilized occupational information as proxy measures for income level. Conversely, Melchiori and Szady (1987, 1988) established that it is possible to secure a high response rate to questions dealing with personal and household income without offending alumni/ae being surveyed.

Expenses that limit one's discretionary income represent a factor that negatively influences the Capacity to Give construct. For instance, dependent children of college age or younger limit one's disposable income and subsequently decrease one's Capacity to Give (Connolly & Blanchette, 1986; Paton, 1982, 1986; Volkwein et al., 1989). Current employment status may also be a significant determinant of financial capacity (e.g., unemployment vs. full-

time employment, retirement etc.). Capacity to Give is also influenced by educational attainments (Academic Integration) and social interactions with others (Social Integration) (Volkwein et al., 1989).

An example may help to illustrate this concept. Julie is an alumna of Alma Mater University from thirty years ago. She earned both a bachelor's degree in political science and a law degree from the university. Julie is married and has two children, both of whom are now finished with college and living and working on their own. She is a partner in a successful law firm and her husband is a physician. They each earn a good individual income, and, thus, have a prosperous combined household income.

Julie's earning power is significantly influenced by the education she received from Alma Mater University. With that education she launched a successful career and earns a good living. The result of all these factors—educational attainments, social interactions, age and status of her children, her personal income and joint household income—give her a high degree of gift giving capacity.

This study will explicitly model and test the direct effect of Capacity to Give on Alumni/ae Gift Giving Behavior. It is assumed that the Capacity to Give construct exerts a main effect that is over and above that of the Interaction of Capacity to Give and Motivation to Give on Alumni/ae Gift Giving Behavior. This phenomenon might be summarized in a question. What, then, would drive people to give, in the absence of a Motivation to Give, when they have greater capacity? Three possible explanations are: (1) cost savings from federal income tax deductions, (2) a sense of altruism on the part of the donors, and (3) persuasive appeals on the part of educational fund raisers.

Motivation to Give

Research reviewed in chapter 2 also points to the significance that one's readiness, or Motivation to Give, has on the gift giving process. Paton (1982, 1986) and Volkwein et al.

(1989) describe the impact that various sources of satisfaction with one's alma mater can have on the subsequent desire to make financial gifts. Motivation to Give is made up of the effects of past satisfactions with the institution on current satisfactions and involvement with the institution.

The satisfaction derived from involvement in the institution as a student through extracurricular activities is an example of a past satisfaction with the institution. Extracurricular activities are known to provide a social network that fosters a sense of intimacy and belonging while attending the institution. These experiences also help students bond to the institution and feel as though they fit in and are in the right place, doing the right things. These experiences frequently result in lifelong friendships, and in some cases, marriage. Current satisfactions have to do with how individuals relate to their alma mater in the present. Researchers have looked at emotional attachment to one's alma mater, positive feelings or attitudes toward alma mater, involvement in alumni/ae activities, and geographic proximity to alma mater as indicators of current satisfaction (Beeler, 1982; Gardner, 1975; Haddad, 1986; Keller, 1982; Korvas, 1984; Markoff, 1978; McKee, 1975; McKinney, 1978; Miracle, 1977; Morris, 1970; O'Connor, 1961; Spaeth & Greeley, 1970).

Past satisfaction with the institution (Academic Integration and Social Integration) has a direct effect on current satisfactions which then produce a level of motivation to make a financial gift. Consider the following example.

Matt received his undergraduate degree in economics from Alma Mater University. As a student, Matt was never really able to find a group of peers with whom he seemed to connect. He attended several student activities while in school, but never joined any organizations or groups. People who knew Matt when he was a student often described him as a loner. Matt feels today that one big reason that he did not make many close friends in college was that he was not able to get any financial aid from the university. As a result, he lived at home with his parents to save money and worked every day before and after his classes. The two part-time jobs Matt worked while he was in school did not leave much time for socializing. To this

day, Matt says, "I got my degree and got out." He has not been back to campus since he graduated some 10 years ago. Matt has never made a financial gift to the university. Based on the description of Matt's experience as a student, one would assume that his sources of past satisfaction were quite low, influencing his current satisfaction negatively, and consequently he has very low motivation to make a gift to the university.

This construct assumes that an influence over and above the effect of the Interaction of Capacity to Give and Motivation to Give drives people who are motivated to give to make a gift even in the absence of the capacity to do so. Motivation to Give, then, is hypothesized to have a main effect on Alumni/ae Gift Giving Behavior. In other words, increased motivation increases giving, even in the absence of capacity to give. What would drive someone with a high level of Motivation to Give to make a gift, even in the absence of Capacity to Give? In short, people find a way to give when they are motivated to do so.

A brief example illustrates this point. On November 1, 1992, the Television show *60 Minutes* ran a story about a college professor who was an expert on the history of porcelain. He was also an avid supporter of the Peabody Museum of Art. On his limited professorial salary he was only able to purchase relatively few pieces that he could donate to the Peabody. However, he found his academic credentials provided him access to the private porcelain collections of museums around the world. When pieces were not on display he simply stole them from other museums and then donated them to The Peabody Museum.

This study will explicitly model and test the effect of these sources of satisfaction with the institution as the latent variable construct, Motivation to Give. Further, this model will test the direct effect of Motivation to Give on Alumni/ae Gift Giving Behavior.

Interaction of Capacity to Give and Motivation to Give

As noted in chapter 2, Paton (1982, 1986) identified the influence of the Interaction of Capacity to Give and Motivation to Give on Alumni/ae Gift Giving Behavior. While Paton

never tested the interaction effects of these two constructs on giving outcomes, he hypothesized that the two interact to have an influence on alumni/ae gift giving decisions. Paton (1982) reported that the inclusion of an interaction variable might produce results superior to those used in his study.

A brief example will illustrate this concept. Bill is a graduate of Alma Mater University. He graduated five years ago with a bachelor's degree in psychology. As a student, Bill was active in campus organizations and he received a scholarship from the university. Bill has been described by his friends as a loyal alumnus. He still lives close enough to campus to drive back for football games in the fall. The first few years after Bill graduated, he found that he simply didn't have the means to make a gift to the university due to the expense of his own apartment, a new car, and student loan payments. However, after five years in the work force, Bill has been promoted and received a substantial pay raise. For the first time since graduation, Bill has discretionary income. Bill has always felt a connection to AMU, and now he has decided to make a gift to the alumni/ae annual fund drive.

Bill's successful academic experiences and social experiences as a student have left him with a positive feeling about the institution and a high level of motivation to remain involved. His continuing attendance at football games is one example of his motivation and continuing involvement. With his new job and ample salary, Bill now possesses the financial capacity to make a gift. Bill's Motivation to Give, combined with his increased Capacity to Give, enables him to actually make his first gift to Alma Mater University.

This study will explicitly model and test the Interaction of Capacity to Give and Motivation to Give on Alumni/ae Gift Giving Behavior. It is the hypothesis of this author that this interaction has a direct effect on Alumni/ae Gift Giving Behavior.

Alumni/ae Gift Giving Behavior

The research to date has not focused on many attributes of gift giving behavior. Typically, previous researchers have simply differentiated donors from nondonors. Alumni/ae Gift Giving Behavior is the ultimate endogenous variable that this study will explicitly seek to model and test. The effect of the five antecedent latent variables will be used to predict Alumni/ae Gift Giving Behavior.

A brief example is provided to illustrate this construct. Helen is a graduate of the School of Social Work at Alma Mater University. She graduated from the institution 55 years ago. Shortly after graduating, Helen met and married her husband, Alvin, who was a lawyer (also a graduate of AMU). Ten years ago Helen's husband passed away. Since this time, Helen has been searching for new purposes to bring meaning to her life. She was introduced to an AMU development officer at a luncheon. In their discussions Helen revealed an interest in becoming more involved with AMU. Later that month, the President of AMU extended an invitation to Helen to join the advisory board on the Future of the School of Social Work. After serving a year on this advisory board, during AMU's most recent capital campaign, Helen pledged a $1 million gift to endow a chair in the School of Social Work in the name of her late husband.

Looking back over the years from the time Helen was a student to the present, several observations can be made. As a student, Helen was active in student activities and had been president of the Student Social Workers League. She met her spouse at AMU. She earned her bachelor's degree at AMU and had always felt it prepared her well for her career. These factors clearly contributed to her high Academic Integration and Social Integration as a student.

Helen's relatively high levels of Academic Integration and Social Integration left her with strong positive feelings and a sense of emotional attachment to the university. These feelings and attitudes, combined with her continuing involvement on the President's advisory board, produced a high degree of Motivation to Give. Following her husband's death, she

became aware that her resources extended far beyond her own needs for the remainder of her life. Thus, her Capacity to Give was also at a high level. The combination of Helen's Motivation to Give and Capacity to Give interacted and resulted in a decision to make a major gift to her alma mater.

This study will explicitly model and test the effect of the five antecedent latent variables of Academic Integration, Social Integration, Capacity to Give, Motivation to Give, Interaction of Capacity to Give and Motivation to Give on the latent variable Alumni/ae Gift Giving Behavior.

Hypothesis Statements

This section sets forth seven hypotheses, derived both from the literature and the model, which examine how Capacity to Give, Motivation to Give, and the Interaction of Capacity to Give and Motivation to Give effect Alumni/ae Gift Giving Behavior. Some of the hypotheses are more general and will seek to confirm previous results while others more specifically link the different parts of this model and test the new relationships that are proposed. Hypotheses concerning the main effects of the model will be presented first (1, 2 and 3); hypotheses relating to antecedents to the main effects will follow (4, 5, 6, and 7). Figure 3.2 illustrates the hypotheses in relation to the model.

Hypothesis 1: In general, Capacity to Give will have a positive effect on Alumni/ae Gift Giving Behavior

This hypothesis represents the theory that Capacity to Give exerts a main effect on Alumni/ae Gift Giving Behavior that is over and above that which is explained by the Interaction of Capacity to Give and Motivation to Give. What would drive people to give, in the absence of Motivation, when they have greater Capacity to Give? Possible explanations

for this phenomenon would include cost savings from federal income tax deductions, altruism on the part of the donor, or persuasive appeals by fund raisers.

Hypothesis 2: In general, Motivation to Give will have a positive effect on Alumni/ae Gift Giving Behavior

This hypothesis represents the theory that Motivation to Give exerts a main effect on Alumni/ae Gift Giving Behavior that is over and above that which is explained by the Interaction of Capacity to Give and Motivation to Give. What would drive people to give, in the absence of Capacity, when they have a high level of Motivation to Give? The answer appears to be that people will find a way. An anecdote shared by many practitioners in educational fund raising is, "people don't give until it hurts, they give until it feels good." We would expect that, in general, even in a no capacity condition, increased motivation should increase giving.

Hypothesis 3: In general, the Interaction of Capacity to Give Index and Motivation to Give Index will have a positive effect on Alumni/ae Gift Giving Behavior

This hypothesis will test the theory that, in general, people will make financial gifts when they have both Capacity to Give and Motivation to Give. It is under the conditions that both variables are present, Capacity to Give and Motivation to Give, that gift giving will occur.

This hypothesis is based, in part, on prior research reviewed in chapter 2. Paton (1986) hypothesized that when Capacity to Give was low and Motivation to Give was high only a minimal effort—investment—should be made on raising funds. One group that would fit this profile are recent graduates. Connolly and Blanchette (1986) advised, however, that, no matter how small the gift, these donors should be cultivated and directed toward making a

habit of giving, so that in their later years as they advance in their careers, they will be inclined to make larger gifts as their Capacity to Give increases. Prospective donors with a high Capacity to Give and low Motivation to Give require a substantially greater investment of effort from the institution in the hope of nurturing an increased Motivation to Give in the future (Paton, 1986).

This hypothesis assumes that "performance" in the model is based on the Interaction of Capacity to Give Index and Motivation to Give Index. In general, then, the Interaction of Motivation to Give Index and Capacity to Give Index is expected to have a positive effect on Alumni/ae Gift Giving Behavior.

Hypothesis 4: Academic Integration will have a positive effect on Capacity to Give

Factors that comprise Academic Integration suggest that persistence and retention through to degree completion should have a direct impact on one's Capacity to Give. In general, those with a college education should possess a higher earning potential than those who do not complete a degree. Therefore, in general, those individuals with a high level of Academic Integration would exhibit higher levels of Capacity to Give.

Hypothesis 5: Academic Integration will have a positive effect on Motivation to Give

Academic integration will also have a positive impact on Motivation to Give, although to a lesser extent than on Capacity to Give. The justification would simply be that those who integrate well are most likely to be degree completers. Therefore, those who exhibit high levels of Academic Integration will also exhibit reasonably high levels of Motivation to Give.

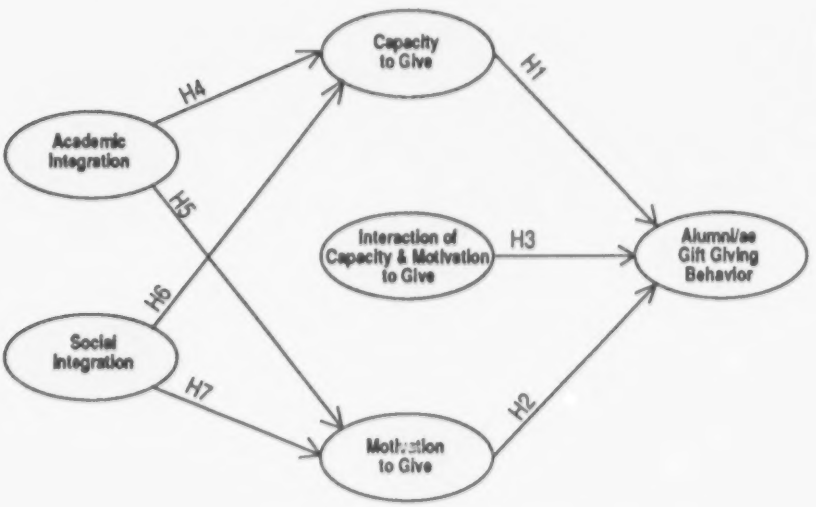
Hypothesis 6: Social Integration will have a minimal positive effect on Capacity to Give

Social Integration, while important to the quality of one's collegiate experience, is not likely to have any measurable impact on one's Capacity to Give. Therefore, it is expected that Social Integration will have a negligible impact on Capacity to Give.

Hypothesis 7: Social Integration will have a positive effect on Motivation to Give

When one makes friends, gets involved, fits in well, and bonds with a group of significant others, one is bound to develop a high level of Social Integration. Therefore, it is expected that those with a high degree of Social Integration will exhibit a high level of Motivation to Give. Conversely, those with a low level of Social Integration are likely to have a low level of Motivation to Give (see Figure 3.2).

Figure 3.2. Graphic Representation of Hypothesis Statements



Study Measurement Model

This section will discuss the specification of the operational measures in the model (see Figure 3.3). Each measure is defined and then discussed beneath the latent variable with which it is associated. Some restatement of the constructs will be included where it is necessary to show the relationship between the construct and measurement indicators. A list of operational definitions for measures of each latent construct will then be presented.

Alumni/ae Gift Giving Behavior

Alumni/ae Gift Giving Behavior is an assessment of an individual's decision to make, or not make, a financial donation. This construct assumes that individuals will have differing levels of Academic Integration and Social Integration as students and, subsequently, differing levels of Motivation to Give, Capacity to Give, and their combined Interaction later in life.

This construct was originally proposed by Volkwein et al. (1989) in their research at the University at Albany. Alumni/ae Gift Giving Behavior is operationalized as Gift Total, Number of Gifts, Number of Years Giving, and Major Donor Status.

Capacity to Give

Capacity to Give is an assessment of factors, both positive and negative, that impact an individual's ability to make a financial contribution. This construct assumes that one's educational attainments influence one's capacity to make a financial contribution to the alma mater.

This construct has been utilized in studies by Connolly and Blanchette (1986), Paton (1982, 1986), and Volkwein et al. (1989). Capacity to Give in this study is operationalized as

annual personal income, annual household income, and current enrollment at any institution of higher education.

Motivation to Give

Motivation to Give is a composite of current sources of satisfaction with one's alma mater. It is assumed that past academic and social satisfaction with one's alma mater influence the overall feeling about the institution. These past satisfactions influence current satisfaction and level of involvement with the institution to produce a readiness level or level of Motivation to Give.

This construct has been utilized by Connolly and Blanchette (1986), Paton (1982, 1986), and Volkwein et al. (1989). Motivation to Give will be operationalized in this study as Number of Alumni/ae Activities Involved In, General Attitude Toward the University of Michigan, attitude toward Michigan education as a Preparation for Life, and attitude toward Michigan education as a Preparation for Career.

Interaction of Capacity to Give Index and Motivation to Give Index

This construct is an assessment of the combined influence of Capacity to Give and Motivation to Give on actual giving behaviors. It is hypothesized that this interaction produces a direct effect on giving behavior that is separate and distinct from that of Capacity to Give alone, and Motivation to Give alone.

This construct has been identified in research by Paton (1982, 1986), however, no study has yet utilized this construct in the study of Alumni/ae Gift Giving Behavior. Therefore, this construct is new to this study.

The Interaction of Capacity to Give Index and Motivation to Give Index is operationalized in this study as an index of Capacity to Give by creating a weighted average of

the three Capacity to Give measurement variables. An Index of Motivation to Give is also created from the four measurement variables of Motivation to Give. The index of Capacity to Give is then multiplyed by the Motivation to Give Index. The result of this mathematical procedure is the Interaction of Capacity to Give Index and Motivation to Give Index.

Academic Integration

Academic Integration is an assessment of both positive and negative factors that influence how well an individual fits into the academic environment of an institution as a student. It is hypothesized that Academic Integration produces a level of satisfaction that influences subsequent Motivation to Give, Capacity to Give, their Interaction, and Alumni/ae Gift Giving Behavior.

Academic Integration is a refinement of a construct proposed by Volkwein et al. (1989). Academic Integration will be operationalized in this study as Number of UM Degrees, Number of Non-UM Degrees, Number of Years Spent at UM, Graduation Date, and Receipt of Financial Aid.

Social Integration

Social Integration is an assessment of sources of social satisfaction during an individual's collegiate experience. It is hypothesized that these social satisfactions influence subsequent Motivation to Give, Capacity to Give, their Interaction, and Alumni/ae Gift Giving Behavior.

The Social Integration construct is a refinement of a construct proposed by Volkwein et al. (1989). Social Integration will be operationalized in this study as the Number of Student Activities participated in, Children's Attendance at UM, Parents' Attendance at UM, and Spouse Attendance at UM.

Operational Definitions

This section will discuss the specification of the operational measures in the model (see Figure 3.3). Each measure is defined and then discussed beneath the latent variable with which it is associated.

Academic Integration Measurement Variables

Number of degrees from the University of Michigan. This variable was downloaded from alumni donor data base records and laser imaged onto the census questionnaire for each alumni/ae respondent. Space was also provided for respondents to make corrections if necessary.

Number of years spent at the University of Michigan. This was a recoded variable derived from time to degree averages received from the Office of Academic Planning at the University. Total number of years were calculated based on an average time to degree of 4.4 years for an undergraduate degree, 2.5 years for a master's degree, and 5.5 years for a Ph.D.

Number of non-University of Michigan degrees. This was a self-reported measure on the census questionnaire where respondents were asked to indicate all postsecondary degrees they had earned from institutions other than the University of Michigan. Respondents were given the option to list a maximum of two additional degrees.

Social Integration Measurement Variables

Number of student activity participation. The census questionnaire gave respondents the opportunity to select up to nine University of Michigan student activities in a fixed choice format. These included: athletics, fraternity/sorority, student government, performing groups, publications, honorary/professional student societies, special groups/clubs, student-alumni/ae

activities, and other. This variable was recoded to add the number of student activities each respondent reported.

Number of children who attended the University of Michigan. Respondents were asked to identify their children by name, birthdate, and indicate if they attended the University of Michigan. This variable was recoded to add the number of children that each respondent indicated attended the university. A maximum of four children could be recognized by this variable.

Parent attended the University of Michigan. Each respondent was asked to indicate the name of their mother and their father. Next to the space provided for each name was a check-off box to indicate if they attended the University of Michigan.

Spouse attended the University of Michigan. Respondents were asked to check a box to indicate if their spouse had attended the University of Michigan.

Capacity to Give Measurement Variables

Annual personal income.* Each respondent was asked to indicate their 1985 pre-tax personal income from one of eight categorical ranges. The following were the ranges from which respondents were asked to select: up to $20,000, $20,001 to $30,000, $30,001 to $40,000, $40,001 to $60,000, $60,001 to $1 00,000, $100,001 to $200,000, $200,001 to $500,000, and over $500,000.

Annual household income.* Each respondent was asked to indicate their 1985 pre-tax household income for all family members and all sources from one of eight categorical ranges. The following were the ranges from which respondents were asked to select: up to $20,000,

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* All measurement variables with an asterisk were standardized in order to compute correlations for the interaction term used in the model. These variables were recoded by adding 10 to each variable prior to calculating correlation coefficients used to run in the PLS program.

$20,001 to $30,000, $30,001 to $40,000, $40,001 to $60,000, $60,001 to $100,000, $100,001 to $200,000, $200,001 to $500,000, and over $500,000.

Current enrollment. Respondents were asked to indicate if they were currently enrolled at any institution of higher education.

Motivation to Give Measurement Variables

Number of alumni/ae activity participation.* The census questionnaire gave respondents the opportunity to select up to 11 University of Michigan alumni/ae activities in a fixed choice format. These included: alumni/ae programs, executive training programs, donor recognition programs, school/college fund raising programs, sports events, deferred giving (trust, bequest, estate), assisting in recruiting students, serving as a fund raising volunteer, contributing to the Campaign for Michigan, and other. This variable was recoded to add the number of alumni/ae activities each respondent reported.

General attitude toward the University of Michigan.* Each respondent was asked to circle a number on a seven-point Likert scale indicating their general attitude toward the University of Michigan. The scale ranged from (-3) as strongly negative to (+3) as strongly positive.

Preparation for life.* Each respondent was asked to indicate the extent that their experience at the University of Michigan prepared them for life in general. Respondents were asked to select one choice from a five-point Likert scale ranging from very effectively to very ineffectively (i.e., positive to negative). This variable was recoded to have responses appear from very ineffectively to very effectively (i.e., negative to positive).

Preparation for career.* Each respondent was asked to indicate the extent that their academic experience at the University of Michigan prepared them for a professional career. Respondents were asked to select one choice from a five-point Likert scale ranging from very

effectively to very ineffectively (i.e., positive to negative). This variable was recoded to have responses appear from very ineffectively to very effectively (i.e., negative to positive).

Interaction of Capacity to Give Index and Motivation to Give Index Measurement Variable

The interaction latent variable was created using simple linear models. The three measurement indicators for Capacity to Give were standardized and averaged to provide a single measure. This procedure was repeated for the four Motivation to Give measurement indicators which also produced a single measure. The product of these two single measures was taken to generate the interaction term.

Alumni/ae Gift Giving Behavior Measurement Variables

Major donor. This variable was created from alumni donor data base records in the data set. Each census respondent who had made financial gifts sufficient to be recognized in one of the following Presidential gift levels was included: Presidential level ($10,000 to $50,000), Tappan level ($50,001 to $99,999), Benefactor level ($100,000 to $999,999), and Angell ($1 million or more). This variable was recoded to include any census respondent who was in any of the four major gift levels.

Gift total in prior years. This variable was created from alumni donor data base records in the data set. This measure reported the total dollar amount of gifts received prior to the 1986-87 fiscal year.

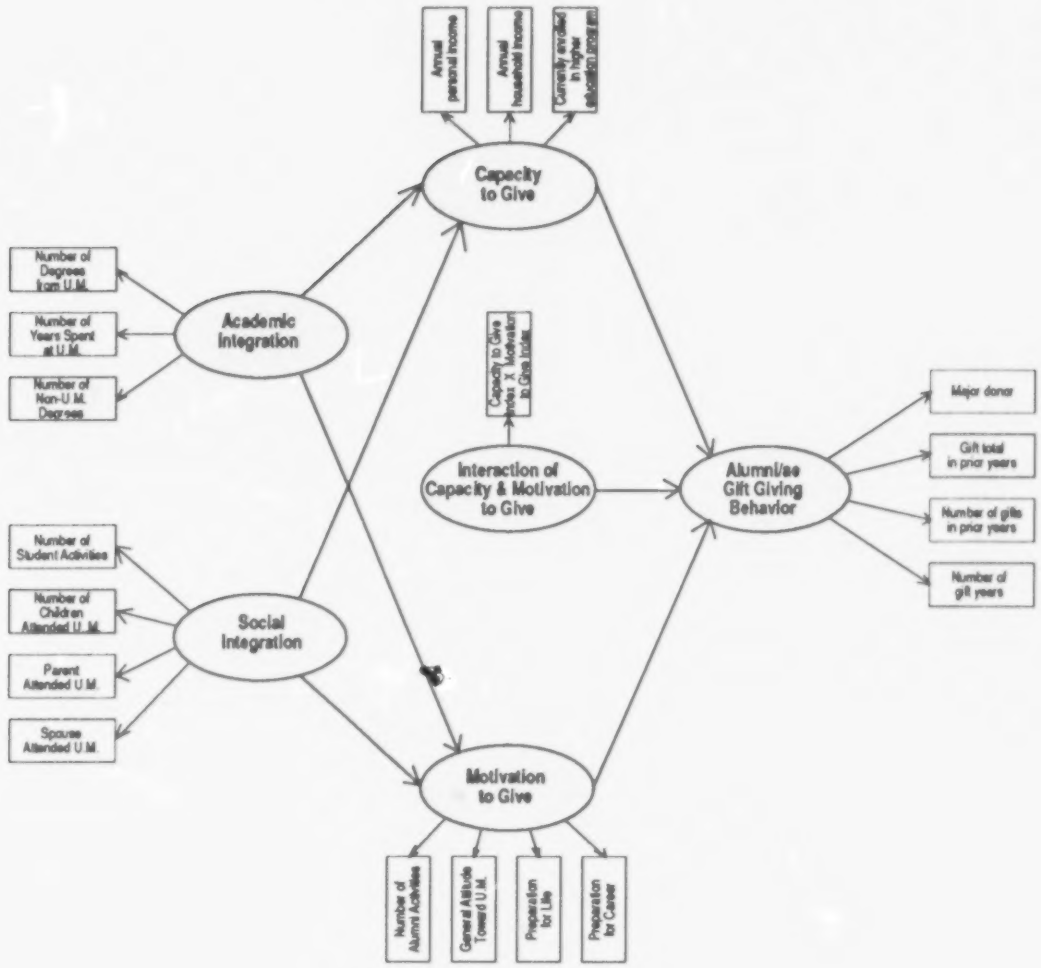
Number of gifts in prior years. This variable was created from alumni donor data base records in the data set. This measure reported the number of gifts received prior to the 1986-87 fiscal year.

Number of gift years. This variable was created from alumni donor data base records in the data set. This measure reported the number of years in which gifts were received prior to the 1986-87 fiscal year.

University of Michigan in will. This variable was created from alumni donor data base records in the data set. This measure reported whether the alumnus/a respondent had notified the university that the organization was listed as a beneficiary in their will.

Figure 3.3 graphically illustrates the relationship of measurement variables to latent variables in the model.

Figure 3.3. Whole Model—Measurement and Latent Variables


Annual personal income
Annual household income
Currently enrolled in higher education (yes/no)
Capacity to Give
Number of Degrees from U.M.
Number of Years Spent at U.M.
Number of Non-U.M. Degrees
Academic Integration
Capacity to Give Index X Motivation to Give Index
Interaction of Capacity & Motivation to Give
Alumni/ae Gift Giving Behavior
Major donor
Gift total in prior years
Number of gifts in prior years
Number of gift years
Number of Student Activities
Number of Children Attended U.M.
Parent Attended U.M.
Spouse Attended U.M.
Social Integration
Motivation to Give
Number of Alumni Activities
General Attitude Toward U.M.
Preparation for Life
Preparation for Career

Summary

The purpose of this chapter has been to identify and explain each of the latent variable constructs used in the study's model of Alumni/ae Gift Giving Behavior. Additionally, the chapter puts forth seven hypothesis statements to illustrate the expected

relationships in the model. Lastly, the chapter identifies the actual measurement variables that will be used to reflect the latent variable constructs used in the model.

CHAPTER IV

ANALYSIS AND DISCUSSION OF RESULTS

This chapter describes the procedures used to test the hypotheses posed in chapter 3. In addition, a discussion of the results related to the hypotheses is presented. The outline of this chapter is as follows:

(1) Description of sample including overall sampling procedure and overall sample size;

(2) Partial Least Squares Analysis: Discussion of method and results;

(3) Results of the structural theoretical model;

(4) Results of the interaction model;

(5) Results of the extended model;

(6) Results of the revised structural theoretical model;

(6) Discussion of hypotheses and results;

(7) Results of the model within the model analysis.

Description of Sample

Using the random sampling features of the OSIRIS . IV program, a 1% sample was drawn from the data set of 110,010 respondents to the University of Michigan Alumni Census. This sampling procedure generated a sample size of 1,064 respondents. As a part of the sampling procedure, filtering statements were added to eliminate respondents who were alumni/ae of the Flint and Dearborn campuses. This was done to produce a sample of alumni/ae that was organization-specific to the Ann Arbor campus of the University of Michigan.

Descriptive statistics run on the sample found that 635 respondents were male (59.7%) and 429 were female (40.3%); 565 (53.1%) were donors and 499 (46.9%) were nondonors.

The original data set contained 194 separate variables. The data set was subsetted down to 35 variables that were potential latent variable indicators for the model. A second 1% sample (N=1,017) was also drawn from the data set of 110,010 respondents to serve as a hold out sample in order to cross check the results of our initial 1% sample.

Respondents in the samples represented 19 schools and colleges on the Ann Arbor campus. These included: Architecture and Urban Planning; Art; Business Administration; Dental Hygiene; Dentistry; Education; Engineering; Graduate School; Law; Library Science; Literature, Science and Arts; Medicine; Music; Natural Resources; Nursing; Pharmacy; Public Health; Social Work; and Kinesiology.

Raw data were analyzed using SYSTAT version 4.0 to provide pairwise Pearson correlation matrices for both samples. These correlation matrices served as input to subsequent PLS analyses.

Partial Least Squares Analysis: Discussion of Methods and Results [1]

The relationships among constructs (see Figure 3.3) imply the simultaneous investigation of the direct and indirect relationships among a set of unobservable or latent variables. As a result, hypotheses are not independently tested, rather they are tested within the context of the whole model. The evaluation of structural equation models has been made feasible by recent methodological advances in the social sciences which have given rise to "second-generation multivariate analysis techniques" (Fornell 1982, 1987) which, as described in chapter 1, are more powerful than traditional multivariate techniques.

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[1]This section draws heavily from Fornell & Bookstein (1982) and Feldman (1992).

The power of structural equation models lies in their ability to model measurement, method, and trait error, incorporate unobservable constructs, and confront and combine a priori knowledge with empirical data. In the social sciences, the structural equations approach is closely identified with maximum likelihood factor analysis procedures generalized by Karl Jöreskog which are today relatively well known due to the LISREL computer package for parameter estimation (Jöreskog & Sörbom, 1989). However, social science data in many areas of research do not always satisfy the rigid data requirements of a maximum likelihood estimation. Such data requirements include multinormality, interval scaling, and large sample sizes. In addition, a technique which is primarily confirmatory—such as LISREL—may be inappropriate in areas of social science research where theory is still in its infancy and multiple research traditions are often present in exploratory stages. This study falls into the category of exploratory research.

Wold's (1980) Partial Least Squares (PLS) analysis, a structural equations methodology for estimating path models with indirectly observed latent variables, is an increasingly popular alternative to LISREL, when the focus of the research is more exploratory in nature. In addition, PLS is a form of statistical analysis which focuses on theory building rather than theory testing and is less restrictive concerning data assumptions that are required to run the program. Structural equation models have been used extensively in substantive research in the social sciences for more than a decade (Bagozzi & Yi, 1989). Applications of PLS may be found in a variety of disciplines including chemistry, economics, political science, marketing, and higher education (Fornell & Bookstein, 1982). Clearly, the choice of methodologies depends on a number of factors and the choice is not often straightforward. Both PLS and LISREL apply to the same class of models—structural equations with unobservable variables and measurement error—but they have different structures and objectives. A summary of these differences is shown in Table 4.1. The PLS algorithm uses a form of fixed point and least squares estimation. It derives "factor scores" for each latent variable and effectively uses these scores to derive path regression coefficients as in path analysis. Its objective is to minimize residual variance

rather than to reproduce an observed covariance matrix, as in the case of LISREL. Output of the algorithm includes path coefficients (or direct effects), total effects (r-squareds), and significance levels for direct effects which are used to evaluate the system hypotheses, or structural model. In addition, output includes loadings and regression weights for all measures of latent constructs, which permit the evaluation of the measurement model.

In summary, PLS is well suited for our purposes here due to: (1) its goal of explaining variance, (2) its focus on prediction/theory building rather than theory testing, (3) its requirements of only least squares assumptions, (4) its robustness with large and small sample sizes, (5) its ability to handle systems of unobservable constructs, and (6) its ability to incorporate both theory and data into the estimation of model parameters.

Table 4.1. Summary of Differences Between PLS and LISREL

PLS	LISREL
• Ordinary Least Squares	• Maximum Likelihood
• Large model/small sample	• Small model/large sample
• Emphasize prediction not structure	• Emphasize structure over prediction
• Simple linear regression for testing estimates or Blindfolding	• Statistical tests of parameters
• No assumption on distribution of data	• Assumption of multivariate normality
• Account for specified variances—observed or unobserved	• Account for all observed covariances
• Prediction accuracy, simplicity, and fewer assumptions	• Statistical precision, stringent assumptions, parameter efficiency
• Theory and data driven	• More theory driven

Note. Adapted from *An Empirical Investigation of Factors Affecting Marketing Management Decision Making and Firm Performance* by L. S. Feldman, 1992, p. 94.

Model Structure

The PLS model is a general approach for representing path models with latent variables. Relations among latent variables are specified as stochastic and are considered the conditional expectation of the predictands for given values of the predictors ("inner relations"). It is written as

(1) $$E(\eta \mid \eta, \xi) = \beta^{*}\eta + \Gamma\xi$$

where $\eta = (\eta_1, \eta_2 \ldots \eta_m)$ and $\xi = (\xi_1, \xi_2, \ldots \xi_n)$ are the vectors of unobserved criterion and explanatory variables respectively, β^{*} ($m \times m$) is a matrix of coefficient parameters (with zeros in the diagonal) for η, and Γ ($m \times n$) is a matrix of coefficient parameters for ξ.

The measurement equations relating measurement variables to their respective latent variable ("outer relations") are

(2) $$y = \Lambda_y \eta + \varepsilon$$

(3) $$x = \Lambda_x \xi + \delta$$

where $y' = (y_1, y_2, \ldots, y_p)$ and $x' = (x_1, x_2, \ldots, x_q)$ are the observed criterion and explanatory variables, respectively, Λ_y ($p \times m$) and Λ_x ($q \times n$) are the corresponding regression matrices, and ε and δ are residual vectors.

Relationship Between Unobserved and Measured Variables

In PLS, the unobservable variables are estimated as exact linear combinations of their empirical indicators

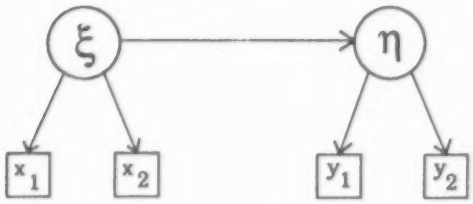
(4) $\eta = \pi_{\eta} y$

(5) $\xi = \pi_{\xi} x$

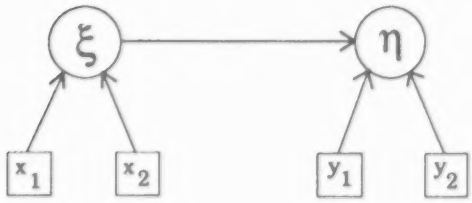
where π_{η} (p x m) and π_{ξ} (p x m) are regression matrices.

Equations 2, 3 and 4, 5 show that the unobserved constructs can be viewed either as underlying factors or as indices produced by the observable variables. That is, the observed indicators can be treated as reflective or formative. Reflective indicators are typical of classic test theory and factor analysis models; they are invoked in an attempt to account for observed variances or covariances. Formative indicators, in contrast, are not designed to account for observed variables; they are used to minimize residuals in the structural relationship. The choice between indicator mode (the relationship between unobservables and data) involves three major considerations: study objective, theory, and empirical contingencies. Figure 4.1 shows the different modes of indicators.

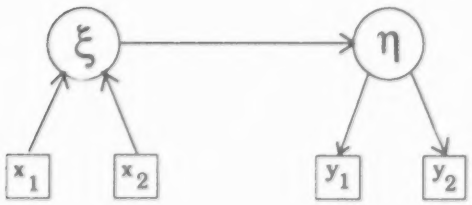
Figure 4.1. Three Modes of Relating Unobservables to Empirical Indicators



Mode A: Reflective indicators



Mode B: Formative indicators



Mode C: Formative indicators for the exogenous construct, reflective indicators for the endogenous construct

If the study intends to account for observed variances, reflective indicators (Mode A) are most suitable. If the objective is explanation of abstract or "unobserved" variance, formative indicators (Mode B) would give greater explanatory power. Mode C is a compromise between the two principles.

Choice of indicator mode is also governed by an aspect of the substantive theory behind the model: the way in which the unobservable construct is conceptualized. For reflective indicators, the constructs are generally thought of as giving rise to something that is observed (e.g., attitudes, behaviors). In the formative mode, the constructs are conceived of as explanatory combinations of indicators which are determined by a combination of variables (e.g., Interaction of Capacity to Give and Motivation to Give).

The final criterion of indicator choice involves an empirical element. In the formative mode, sample size and indicator multicollinearity affect the stability of indicator coefficients which, in this mode, are based on multiple regressions. In the reflective mode, indicator coefficients are based on simple regression and, thus, not affected by multicollinearity. If the indicators are highly collinear but one nonetheless desires optimization of explained structural model variance, one might estimate in Mode B but use loadings, rather than regression weights (as is customary) for interpretation.

In this study, the choice of indicator specification was governed primarily by the theoretical conceptualization of the constructs. For the structural theoretical and extended models, Capacity to Give and Motivation to Give are reflective because they are being used primarily to account for the amount of variance in the construct. However, in the interaction models the measurement variables from Capacity to Give and Motivation to Give are conceived of as interacting so that one may unlock the effect of the other. Thus, the formative mode is most appropriate for this model.

Assumptions

Unlike maximum likelihood procedures, PLS is based on fixed point estimation. A series of interdependent ordinary least squares (OLS) regressions is used to minimize residual variance and, thus, identification is not an issue. Under PLS, no assumptions are made with respect to the underlying population or measurement scale. Hence, no distributional

requirements are necessary. Further, independence of observations is not needed; estimates under PLS are consistent at large. In principle, PLS is applicable for large and small sample sizes.

Estimation

The PLS model is estimated by (1) the loadings (Λ_y, Λ_x) or weights (π_η, π_x) which describe how the observations relate to the unobservables, and (2) the structural relations (β,Γ), whereby values of unobservables influence values of the other unobservables in the system. Instead of optimizing a global scalar function, PLS estimates by way of a nonlinear operator for which the vector of all estimated loadings (Λ_y, Λ_x) is a fixed point.

Significance Testing

In addition to the PLS analysis, the relationships in the conceptual model were examined using simple linear models. The multiple measures for the theoretical constructs were standardized and weighted according to their PLS measurement loadings to create a single indicator for each construct for the analyses. This procedure, supported in the work of Johnson, Lehmann, Fornell and Horne (1992), is a simple and straightforward alternative to blindfolding procedures for testing the significance of theoretical relationships.

Evaluation of Fit

Although no single fit index for the estimation has been defined, Lohmoller (1989) indicates that several indices may be used to evaluate the results of the estimation. Model results are usually evaluated on three aspects: outer model (measurement portion, or the relationship of measurement variables to latent constructs), inner model (structural portion, or

the relationship among latent constructs), and total model (outer and inner model together). The fit of the outer model can be judged as satisfactory if the unexplained part of the measurement variable (MV) variance ($1-H^2$) is low enough and if the communalities H^2k are high enough. Due to the fact that the latent variables (LVs) are estimated as linear combinations of the MVs, a peculiarity must be noted: if there is just one MV in a block, then the residual variance is equal to zero. In addition, one may calculate the percentage of variable covariance explained for the outer model—a measure of model fit—as $(S-\Theta)/S$ where Θ is the root mean squared residual covariance and S is the root mean squared covariance for this model.

The fit of the inner part of the model, as in evaluating the fit of the outer model, can be judged as satisfactory by calculating the percentage of variable covariance explained as $(S-\Theta)/S$ where Θ is the root mean squared residual covariance and S is the root mean squared covariance for this part of the model. Satisfactory fit can also be assessed by determining if the unexplained part of the LV variance ($1-R^2$) is low enough. In addition, in evaluating the inner model, one should look at the sign and significance of the paths.

The importance in model evaluation that one puts on measures of fit versus significance and signs of paths (and loadings) is primarily dependent on the goal of the research. If one is interested in theory building, one might put more weight on the significance and the signs of the paths. That is, are the paths significant and in the expected direction? On the other hand, if theory testing is the goal, measures of model fit might be more critical in confirming the theory. In this study, we are primarily involved in theory building; we have modified and expanded the theory of Alumni/ae Gift Giving Behavior and applied it to an alumni/ae population of a large public research university.

PLS Estimation Procedures and Results: A Guide to Interpretation

The following section is provided to give a brief step-by-step look at estimating and interpreting a PLS model. The purpose of this passage is not to explain the substantive theory

behind these steps, but to provide a concise guide to estimating a model and interpreting model results.

Step one: Data input requirements. The PLS program uses either a correlation or covariance matrix or the raw data as the primary source of input data to estimate a model solution.

Step two: Specifying relationships between measurement variables (directly observed measures) and latent variables (theoretical measures). After a file containing the input data has been created it is necessary to specify the relationships between the observed and theoretical measures the PLS program is to model. This is done through a series of three steps: (1) linking observed measures to theoretical variables, (2) selecting a mode to relate observed measures to theoretical variables, and (3) identifying which variables are not exclusively within the model (exogenous) and those variables that explain, in part, causality in the model (endogenous).

(1) Linking observed measures and unobserved theoretical variables—The data analyst must indicate which measurement variables relate to which latent variables at the beginning of the program. In most data analysis packages this is often referred to as a command file. The data analyst indicates how the computer is to read and relate the variables in the data file.

(2) Selecting a mode to relate observed measures to unobserved measures—The data analyst must also indicate which mode to use to relate the theoretical variables (latent variables) to their directly observed measures (measurement variables). As indicated in the preceding section, one of three choices must be made: reflective, formative or a combination. The choice of mode is determined by the way in which the data analyst views the theoretical variables. The reflective mode is used in an attempt to account for observed variances or covariances. The formative mode is used in an attempt to minimize the residuals among the latent variables or theoretical variables. In this study, the goal of the structural theoretical models is explaining variance, so the reflective indicators will be used.

(3) Identification of variables not exclusively within the model (exogenous constructs) and variables that explain, in part, causality in the model (endogenous constructs)—This procedure identifies which latent variables are influences on or antecedents to other latent variables in the model.

Step three: Estimate the model. The next step is to estimate the model (i.e., run the program). The PLS program is an iterative procedure. It can attempt to reach a solution in as many as 100 cycles. Models that are well conceived usually reach a solution in a small number of iterations, i.e., 10 or less. Most of the model solutions presented in this chapter were reached in four to seven iterations. Model estimations that require a large number of iterations indicate that the program may be "struggling" to reach a solution to a model that is not well specified.

Step four: Interpretation of results. Interpretation of the PLS results includes the following information: (1) path coefficients, (2) squared multiple correlations (R^2), (3) latent variable loading pattern, (4) outer model residuals, (5) inner model residuals. A brief description of each follows.

(1) Path coefficients—Path coefficients are a numeric estimation of the strength of the effect that one latent variable has on another in a particular model, low indicating a small effect and high indicating a large effect. Path coefficients range from zero to 1.0.

(2) Squared multiple correlations (R^2)—The squared multiple correlations tell the data analyst the amount of variance explained by the endogenous latent variables in the model. In the case of this study, we are most interested in the amount of variance explained in the late variable, Alumni/ae Gift Giving Behavior. The range of R^2 is from zero to 1.0.

(3) Latent variable loading pattern—Loadings refer to the correlation or weight of an observed measure to the latent variable with which it is associated. Loadings are derived through a form of principal components factor analysis. The data analyst looks to see if the loading scores are large and positive. If the loadings are higher than the path coefficients in the model, the data suggest that the latent variables have isolated unique concepts or that they have discriminant validity. Loadings range from -1 to 1.

(4) Outer model residuals—The "outer model" refers to the relationship of all the measurement variables to the latent variables with which they are associated. "Outer model residuals" refers to the amount of covariance that remains after the model solution has been reached. Specifically, they show the size of any relationships between measurement variables that were not specified in the model. This is a way of checking to see if the data analyst has misunderstood the relationship between any measure and the latent variable with which it was linked.

(5) Inner model residuals—The "inner model" refers to the relationship of all the latent variables to each other. "Inner model residuals" refers to the amount of covariance that remains after the model solution has been reached. Specifically, they show the size of any relationships between latent variables that were not specified in the model. This is a way of checking to see if there are relationships that the data analyst has omitted or misunderstood in the design of cause and effect relationships in the model.

Step five: Evaluate the fit of the model. Although no single procedure has been identified as the best method to evaulate the fit of the model the PLS program provides two sets of model fit statistics in the summary of analysis labeled "outer model fit statistics" and "inner model fit statistics." A brief description of each follows.

(1) Outer model fit statistics—The outer model fit statistics tell the data analyst how well the measurement variables identify the latent variables they were set up to represent. This might be similar to answering the question, "How high, on average, are the loadings of the latent variables?" The summary of analysis section of the PLS results provides two outer model fit results: (S), or the amount of available covariance among the measurement variables, and Θ (Theta), the amount of covariance that is left after the model was estimated. The simple mathematic procedure of subtracting Θ from S and dividing the result by S tells the data analyst the amount of covariance that is explained by the model. In general, a well performing model will explain more than half of the model covariance (Fornell & Bookstein, 1982).

(2) *Inner model fit statistics*—The inner model fit statistics tell the data analyst how well the latent variables relate to one another. The summary of analysis section of the PLS results provides two inner model fit results: (S), or the amount of covariance that you have when the model began, and Θ (Theta), the amount of covariance that is left after the model was estimated. The simple mathematic procedure of subtracting Θ from S and dividing the result by S tells the data analyst the amount of covariance that is explained by the model. In general, a well performing model will explain more than half of the model covariance (Fornell & Bookstein, 1982).

The following section will present model results for our study.

Presentation of Results

The presentation of findings here will focus first on the structural theoretical model results, then discuss the results of the interaction models and highlight the results of the extended models. Lastly, results of the revised structural theoretical model will be discussed.

Test of Model Structure—Preliminary Analysis

The first step in the analysis was to run a main effects version of the model with all the indicators of Academic Integration and all the indicators of Social Integration that were discussed in chapter 3. Originally, there were five indicators of Academic Integration and five indicators of Social Integration. After reviewing the inner correlations of all the measurement variables on these two constructs, Location of Residence, Financial Aid Received, and Spouse Graduation Date were dropped from the analysis. The correlations of these variables suggested that they had very low relationships with the other variables and, thus, did not seem to be reflective of any of the primary constructs of the model. After the elimination of those three indicators, the following measurement variables made up the Academic Integration

construct: Number of Degrees from UM, Number of Years at UM, and Number of Non-UM Degrees. The Social Integration construct was then made up of four measurement indicators: Number of Student Activities Participated In, Parent Attended UM, Spouse Attended UM, and Number of Children who Attended UM.

When the model was estimated there was very weak support for the Academic Integration and Social Integration constructs. Early estimations of the model produced loadings on the latent variables, Academic Integration and Social Integration, in the model that were smaller than the path coefficients, which suggested a lack of construct or discriminant validity for these two latent variables. These results indicated that in neither case had we identified a unique construct. As a result, the Academic Integration and Social Integration constructs had to be substantially modified. It was necessary to modify the model to include the measurement variables that would have made up these two latent constructs as a series of influences or concrete drivers of Capacity to Give and Motivation to Give.

Once this was accomplished, we then tested a model in which all the measurement variables of the Academic Integration and Social Integration constructs were treated as separate concrete drivers of the endogenous constructs in the model, given their low loadings. These concrete drivers are still considered latent variables in the analysis, but conceptually, they are more concrete than the other latent variables in the model. One last attempt was made to establish an Academic Integration construct. Two of the measurement variables were highly correlated: Number of UM Degrees and the Number of Years at UM. As it turns out, although these two measurement variables were highly correlated (.70), they had very different relationships to the endogenous constructs, Capacity to Give and Motivation to Give, which resulted in relatively unstable solutions. So what made more conceptual sense was to treat all of these variables as concrete drivers of the main endogenous variables, Capacity to Give and Motivation to Give.

Once this decision was made, a small number of traditionally important demographic variables were added to the analysis to see if they, too, had any effect on Alumni/ae Gift

Giving Behavior. These demographic variables included: Age, Sex, Marital Status, and Number of Children. Given that previous theories had discussed a demographics construct, these variables were added as representative demographic variables which, did not make sense at a conceptual level, but for experimental purposes were included to test the impact they might have on the model results. That led to a set of 11 concrete drivers of Capacity to Give and Motivation to Give. These included: Number of UM Degrees, Number of Years at UM, Number of Non-UM Degrees, Number of Student Activities, Parent Attended UM, Number of Children Attended UM, Spouse Attended UM, Age, Sex, Marital Status, and Number of Children.

Our preliminary analysis also revealed that one measure of the latent variable Capacity to Give, Number of College Age Children or Younger, did not load highly. However, the other three measures (Annual Personal Income, Annual Household Income, and Current Enrollment) provided an identifiable Capacity to Give construct. Modification was also necessary for the Motivation To Give construct. As with the Capacity to Give construct, one measure of Motivation to Give, Location of Residence, did not load highly and was also removed from the analysis. One measurement variable of Alumni/ae Gift Giving Behavior, UM in Will, was also dropped from the analysis because, again, it did not load highly. The final model included three measures of Capacity to Give, four measures of Motivation to Give, and four measures of Alumni/ae Gift Giving Behavior.

Adjustments in sample size. Although PLS is well suited to our application, PLS estimates are sensitive to missing data (as are other latent variable estimation procedures). Therefore, in our primary model estimations, we eliminated all cases with missing data on our seven key measurement variables for Capacity to Give and Motivation to Give. This reduced the primary sample from 1,064 cases to 511 cases that contained complete data on all these variables. In the hold out sample this procedure reduced the sample size from 1,017 to 459. It should be noted that this does not eliminate all missing data cases. Sample sizes actually varied depending on pairs of variables and pairwise correlations ranged from a low of 344 to a

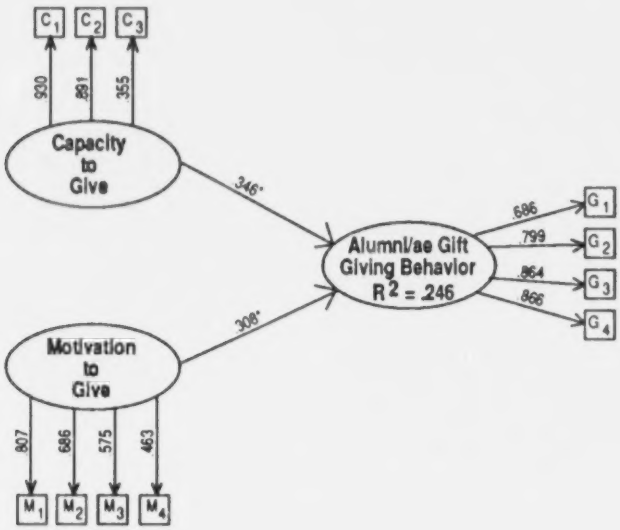
high of 511. The result of this reduction in the sample size is that it undoubtedly makes the results of the model estimations less representative of the population of University of Michigan alumni/ae as a whole. However, the census generated an unrepresentative sample, overall, due to the overrepresentation of donors and men in the sample. In spite of this limitation, the primary value of this study is in the testing of the theoretical structure of the model and less in the use of the empirical output to guide actual fund raising strategy, or the description of the alumni/ae base as a whole. Excluding those respondents who did not provide complete indicators of Capacity to Give and Motivation to Give produces a purer sense of what influence Personal Income, Household Income, Current Enrollment, Number of Alumni/ae Activities, Preparation for Career, Preparation for Life, and General Attitude toward UM all have in the model. Although we focused on the subsamples, we also estimated the models using the entire 1% samples in order to examine the consistency of our results. A discussion of the consistency of results across samples will be presented later in the chapter.

Results of the Structural Theoretical Model Estimation Using the Primary Subsample

As the preliminary analysis did not support the existence of the Academic Integration and Social Integration latent variables, we then estimated what remained of the theoretical model prior to adding the 11 concrete drivers, (which, while of practical interest, are not part of the proposed theoretical model). Subsequently, in the presentation of the extended models, the concrete drivers will be added to see what effect they have on the latent variables.
The structural model results, as shown in Figure 4.2 and Table 4.2, reveal findings similar to those for the model estimation of the larger 1% sample. All of the measurement variable loadings are large and positive, supporting a sizable amount of valid variance in the measures. The measurement loadings are all greater than the path coefficients, supporting the discriminant validity of the model. The communalities for the individual measures are high for 9 of the 11 measures, the exceptions being Current Enrollment (.126) and Preparation for

Career (.214). An examination of the covariances between the outer residuals and the latent variables reveals most covariances near zero. Calculation of (S-Θ)/S shows that the outer model explains 60% of the variable covariance. Overall, the measurement portion of the model is well supported.

Figure 4.2. Structural Theoretical Model Estimation Using the Primary Subsample



Capacity to Give has a slightly greater effect on Alumni/ae Gift Giving Behavior (.346) than does Motivation to Give (.308) (see Figure 4.2). The inner model, or structural model, reveals an R^2 of .25 for Alumni/ae Gift Giving Behavior. Calculation of (S-Θ)/S shows that the inner model explains 73% of the variable covariance.

Table 4.2. Measurement Variable Results Using the Primary Subsample

Variable	Loading	Communality	AVE
CTG			.595
Personal Income	.930	.865	
Household Income	.891	.794	
Current Enrollment	.355	.126	
MTG			.416
Number Alumni/ae Activities	.807	.651	
General Attitude Toward UM	.686	.470	
Preparation for Life	.575	.330	
Preparation for Career	.463	.214	
AGGB (R^2 = .25)			.651
Major Donor	.686	.470	
Gift Total	.799	.638	
Number of Gifts	.864	.746	
Number Years Giving	.866	.750	

Using simple linear models and indices to represent the latent variables, an examination of the paths shows that the two paths specified by the model—Capacity to Give on Alumni/ae Gift Giving Behavior and Motivation to Give on Alumni/ae Gift Giving Behavior—are significant. Consistent with the PLS output, the results showed the effect of Capacity to Give on Alumni/ae Gift Giving Behavior of ($F=42.172$, $P< 0.001$) and Motivation to Give on Alumni Gift Giving Behavior of ($F=26.041$, $P<0.001$). This examination of the significance of the paths shows that the Capacity to Give and Motivation to Give paths are significant at the .05 level.

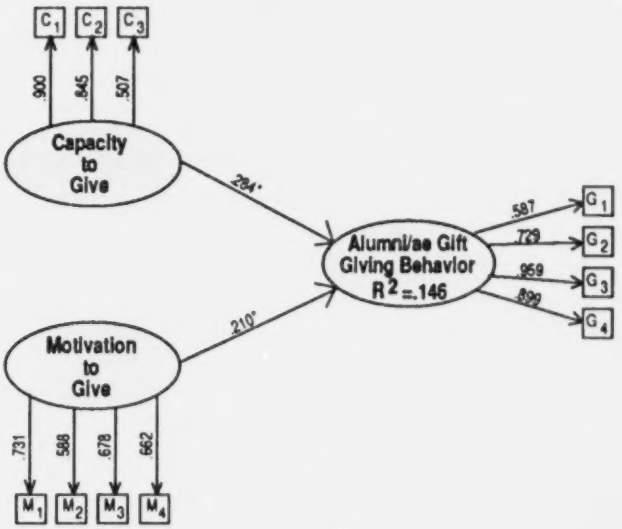
In summary, the results for the primary subsample show generally positive support for both the inner and outer models. The inner model specifies two out of three possible paths

among the three latent variables, or 67% of the possible relationships among them. As noted above, it is the significance of the paths and the size of the loadings that are most important here and the fact that the inner model—the relationship of latent constructs—explains 73% of the variable covariance. This is considered good. It should, however, be noted that there was a residual latent variable covariance between Capacity to Give and Motivation to Give of (.146). This suggests that, technically, the model is some what misspecified. The substantial residual between these two latent variables shows that Capacity to Give and Motivation to Give are related in some way. Later in the chapter we will explore what the nature of this relationship might be.

Results of the Structural Theoretical Model Estimation Using the Hold Out Subsample

As with the primary subsample, the theoretical portion of the structural model was estimated for the hold out subsample prior to adding the drivers. The structural model results, as shown in Figure 4.3 and Table 4.3, reveal similar findings to those for the model for the primary subsample. All of the loadings are large ano positive, supporting a sizable amount of valid variance in the measures. The measurement loadings are all greater than the path coefficients, which again supports the discriminant validity of the model. The communalities for the individual measures are high with the exception of Current Enrollment (.257). An examination of the covariances between the outer residuals and and the latent variables reveals most covariances near zero. Calculation of $(S-\Theta)/S$ shows that the outer model explains 59% of the variable covariance. In summary, the measurement portion of the model is also well supported.

Figure 4.3. Structural Theoretical Model Estimation Using the Hold Out Subsample



Again, Capacity to Give has a slightly greater effect on Alumni/ae Gift Giving Behavior (.284) than does Motivation to Give (.210) (Figure 4.3). The inner model, or structural model, reveals an R^2 of .15 for Alumni/ae Gift Giving Behavior. Calculation of $(S-\Theta)/S$ shows that the inner model explains 60% of the variable covariance. This number, while not as high as the primary sample, is high enough to suggest validation of the theoretical relationships between the latent constructs.

Table 4.3. Measurement Variable Results Using the Hold Out Subsample

Variable	Loading	Communality	AVE
CTG			.594
Personal Income	.900	.810	
Household Income	.845	.714	
Current Enrollment	.507	.257	
MTG			.444
Number Alumni/ae Activities	.731	.534	
General Attitude Toward UM	.588	.346	
Preparation for Life	.678	.459	
Preparation for Career	.662	.438	
AGGB (R^2 = .25)			.651
Major Donor	.587	.345	
Gift Total	.729	.531	
Number of Gifts	.959	.921	
Number Years Giving	.899	.808	

Using simple linear models and indices to represent the latent variables, an examination of the paths shows that the two paths specified by the model—Capacity to Give on Alumni/ae Gift Giving Behavior and Motivation to Give on Alumni/ae Gift Giving Behavior—are significant. Consistent with the PLS output, the results showed the effect of Capacity to Give on Alumni/ae Gift Giving Behavior of ($F=16.543$, $P< 0.001$) and Motivation to Give on Alumni/ae Gift Giving Behavior of ($F=6.760$, $P<0.001$). This examination of the significance of the paths shows that they are significant at the .05 level.

In summary, the results for the hold out subsample show generally positive support for both the inner and outer models. As noted above, it is the significance of the paths and size of the loadings that are most important here and the fact that the inner model (the relationship

of latent constructs) explains over half (60%) of the variable covariance. However, our model specifies 67% of the possible relationships among these three latent variables. In this model, then, we are specifying 67% of the relationships, but only explaining 60% of the variable covariance. This suggests that this model may be misspecified. In reviewing the residual latent variable covariance between Capacity to Give and Motivation to Give, we found a residual of (.178). This substantial residual between these two latent variables, as in the primary subsample, shows that Capacity to Give and Motivation to Give are related in some way. This was an interesting finding. The only two possible relationships that could exist are: (1) that a higher level of Motivation to Give results in making more money, or (2) an increase in Capacity to Give stimulates one's Motivation to Give. In reviewing these choices, it became clear that only one direction makes sense, the latter. That is, an increase in Capacity to Give stimulates one's Motivation to Give. Therefore, the data from these analyses of the primary and hold out subsamples strongly suggest the specification of the last path among these three latent variables. In other words, the data suggest that our theoretical model should also contain a path showing a mediating effect from Capacity to Give on Motivation to Give, in addition to the two direct effects of Capacity to Give and Motivation to Give on Alumni/ae Gift Giving Behavior. Later in the chapter we will add and test this additional theoretical relationship. In the next section we will discuss the results of the interaction models.

Results of the Interaction Model

In estimating the interaction model, it was necessary to construct an index from the measures of Capacity to Give and an index from the measures of Motivation to Give. This was accomplished through a weighted averaging procedure where the loadings of the measures for Capacity to Give and for Motivation to give were used to create a weighted index of each latent construct. A product was then taken of the Capacity to Give index and the Motivation to Give index. This produced the value for the interaction term in this model. Because the indicators

for Capacity to Give and Motivation to Give were mathematically treated in a formative way to generate their indices, the interaction model was similarly estimated with formative indicators. Because the terms had been mathematically indexed or formed, it made conceptual sense to estimate the model in this fashion.

Using the same primary subsample and hold out subsamples, PLS models were estimated adding the additional endogenous construct, the interaction of Capacity to Give Index and Motivation to Give Index.

In the primary subsample the results showed path coefficients between Capacity to Give and Alumni/ae Gift Giving Behavior of (.337), between Motivation to Give and Alumni/ae Gift Giving Behavior of (.316), and between Interaction of Capacity to Give Index and Motivation to Give Index of a disappointing (.014). This model estimation generated an R^2 value of (.262) on Alumni/ae Gift Giving Behavior, or it explained 26% of the variance in Alumni/ae Gift Giving Behavior.

From the discussion immediately preceding this one, the structural theoretical model estimation using the primary subsample produced an R^2 of (.246) on Alumni/ae Gift Giving Behavior. In other words, the interaction model was able to account for only (.016) more variance than its main effects counterpart.

A PLS model was also estimated for the hold out subsample. It showed path coefficients between Capacity to Give and Alumni/ae Gift Giving Behavior of (.270), between Motivation to Give and Alumni/ae Gift Giving Behavior of (.206), and between the Interaction of Capacity to Give Index and Motivation to Give Index of a minute (.028). This model estimation generated an R^2 value of (.159) on Alumni/ae Gift Giving Behavior, or it explained 16% of Alumni/ae Gift Giving Behavior.

In comparing the results of the interaction model estimate to the structural theoretical model estimate, using the hold out subsample, we learned that the interaction model explains (.159) of variance in Alumni/ae gift Giving Behavior and the structural theoretical model explains (.146) of variance in Alumni/ae Gift Giving Behavior. Overall, then, the interaction

model was able to account for (.013) more variance in our hold out subsample and only (.016) more variance in Alumni/ae Gift Giving Behavior in the primary subsample.

This result clearly suggests that the interaction term does not, as originally anticipated, provide additional explanatory power over and above the main effects of Capacity to Give and Motivation to Give on Alumni/ae Gift Giving Behavior. In examining the paths in the structural theoretical model estimation versus the interaction model estimation, it is clear that the interaction latent variable was not able to increase the explanatory power of the analysis by any meaningful margin. The conclusion that this researcher drew from this result was that the interaction model had to be rejected because it did not provide additional value to the analysis or predictive power to the model. This was a major finding of the research. After it was determined that the interaction model did not increase the explanatory power of the analysis, it was eliminated from further model estimations.

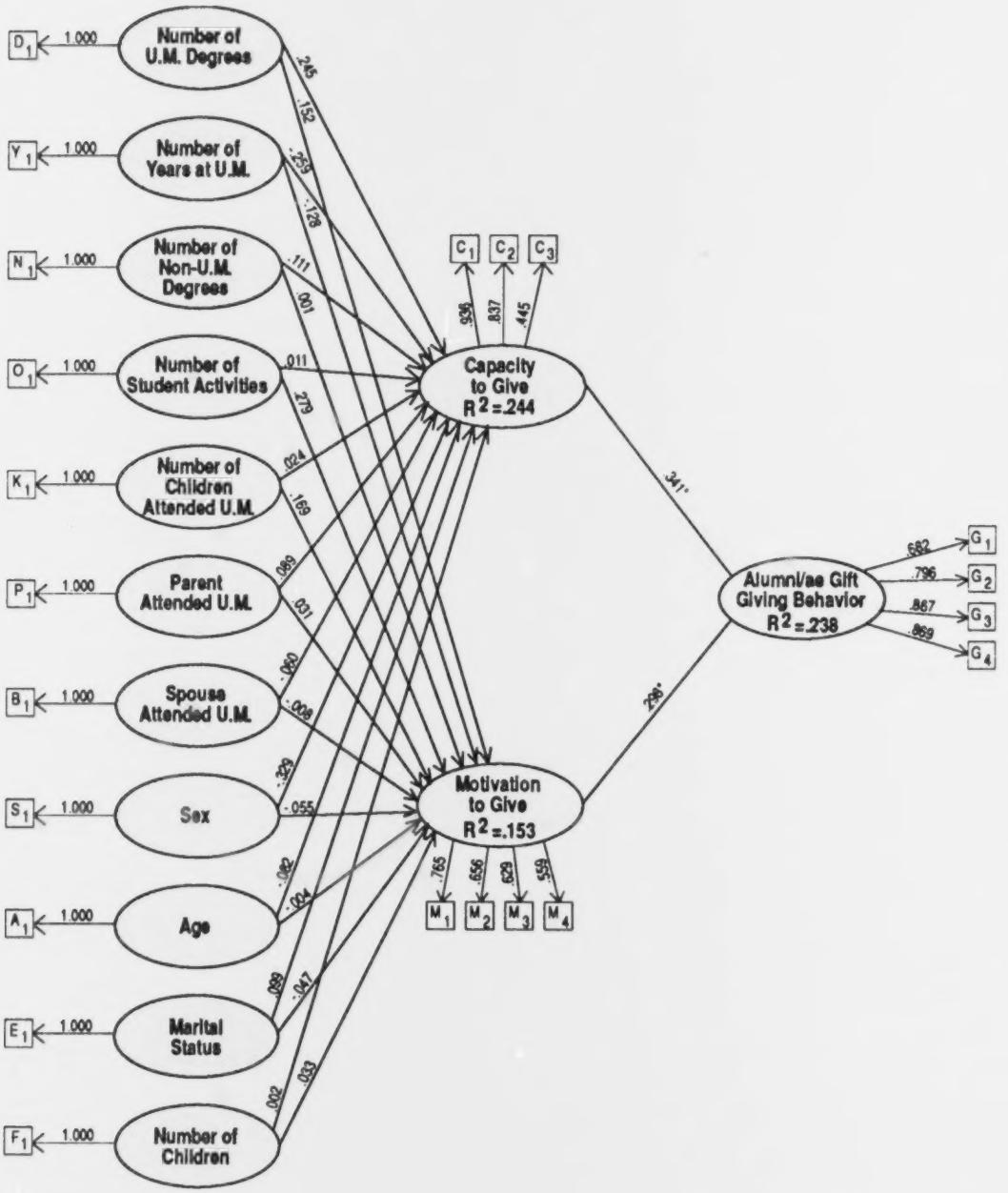
Results of the Extended Model Estimation Using the Primary Subsample

The primary benefit of presenting the extended model is to illustrate the effects of the concrete drivers on the latent variables. As before, evaluation of the outer—or measurement—model (see Figure 4.4) reveals that, because of the singularity of the concrete drivers, each of their 11 loadings are, by definition, (1.0). Loadings on the other 11 measurement variables, as in the previous structural models, are all large and positive, supporting a sizeable amount of valid variance in the measures.

The extended model estimation, including the path coefficients and indicator loadings, is presented in Figure 4.4. It should be noted that the measurement loadings are all large and positive. The measurement loadings are all greater than the path coefficients, which supports the discriminant validity in the structural portion of the model. However, due to the influence of singularity in the concrete drivers, the loadings on each, by definition, are (1.0). As a result,

the loadings are higher than each of their paths. As stated at the beginning of this section, the primary purpose of their inclusion is to show, from a more pragmatic perspective, their effect on the latent variables in the model.

Figure 4.4. Results of the Extended Model Estimation Using the Primary Subsample



As predicted, results of path coefficients showed that Number of UM Degrees (.245) and Number of Non-UM Degrees (.111) had a positive effect on Capacity to Give. This makes conceptual sense in that the value of increased education should translate into increased earning power. Having a parent who attended the University of Michigan (.089) and Marital Status (.099) also had positive influences on Capacity to Give. Being married, in many instances, might yield a higher household income, and having a parent who received a good education (and, therefore, possessed reasonable earning power), might also logically influence Capacity to Give.

The Number of Student Activities (.011), Number of Children (.002), and Number of Children who Attended UM (.024) all had small to negligible effects on Capacity to Give.

The Number of Years at UM (–.259), Spouse Attended UM (–.060), Sex (–.329), and Age (–.082) all had negative effects on Capacity to Give. The Number of Years at UM appears to have had a negative effect on Capacity to Give, perhaps because years in school represent lost earnings. Spouse Attended UM was not a highly stable indicator, so strong conclusions either way are not meaningful. The Sex measurement variable had a large negative effect on Capacity to Give. In this study, this may be due to the gender bias in the gift reporting system that was in place at the time these data were collected. The large negative path is also due to a greater number of male donors in the study sample.

With regard to Motivation to Give results, the Number of Student Activities (.279) had a large positive effect on Motivation to Give, followed by Number of Children who Attended UM (.169), and Number of Degrees from UM (.152), as was expected.

The Number of Non-UM Degrees (.001), Parent Attended UM (.031), and Number of Children (.033) all had small to negligible effects on Motivation to Give.

The Number of Years at UM (–.128) had a negative effect on Motivation to Give. It appears that, similar to the influence this measure had on Capacity to Give, the length of time required to earn a degree may be seen as too long by graduates. Sex (–.055), Age (–.004), Marital

Status (–.047) and Spouse Attended UM (–.008) all had negligible negative effects on Motivation to Give.

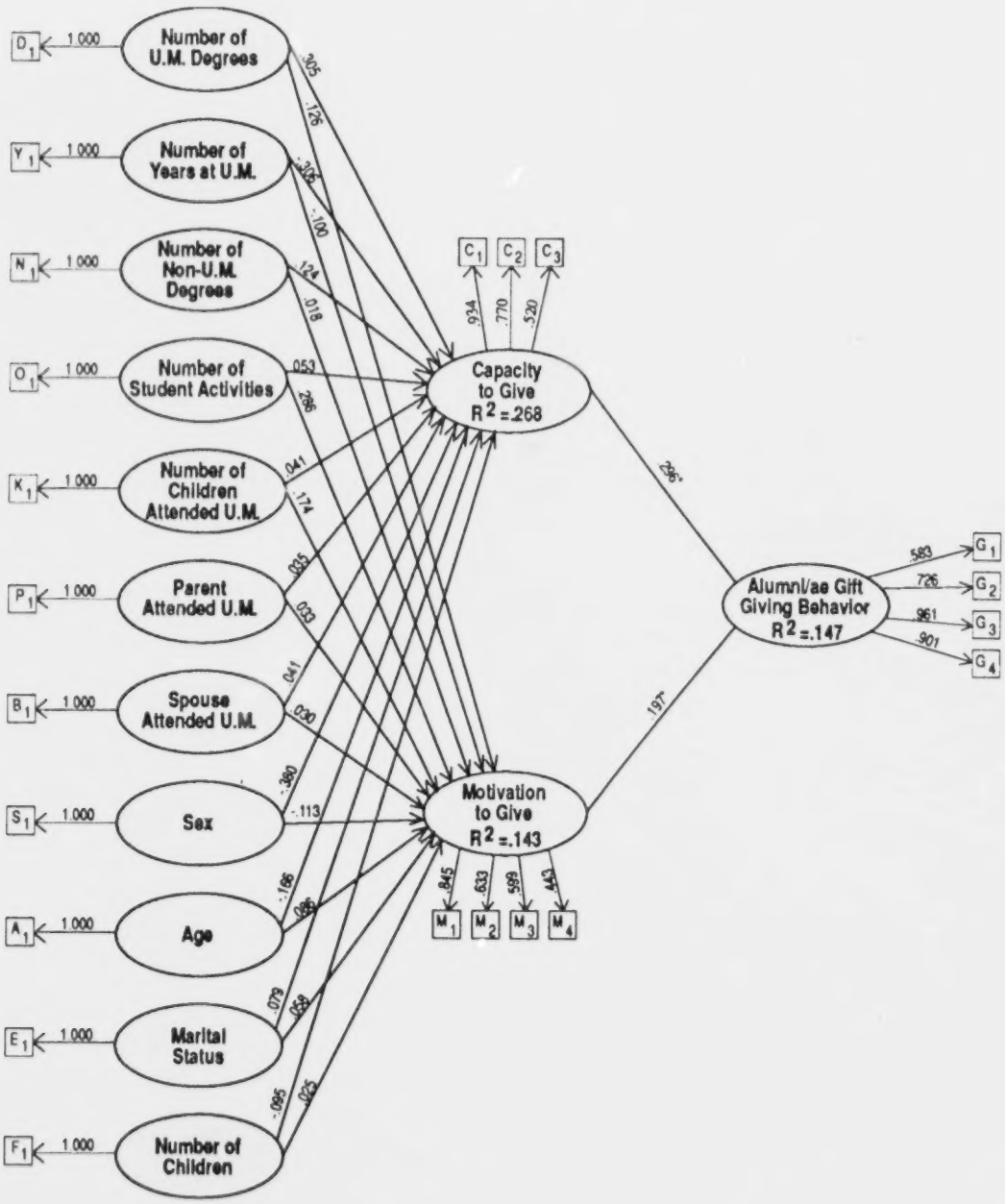
The extended model results show an R^2 of .24 for Capacity to Give, an R^2 of .15 for Motivation to Give and an R^2 of .24 for Alumni/ae Gift Giving Behavior.

Results of the Extended Model Estimation Using the Hold Out Subsample

As stated at the beginning of this section, the primary purpose of the inclusion of the extended model results is to show the pragmatic effect of the concrete drivers on the latent variables in the model. As before, evaluation of the outer—or measurement—model (see Figure 4.5) reveals that, because of the singularity of the concrete drivers, each of the 11 loadings are, by definition, (1.0). Loadings on the other 11 measurement variables, as in the previous structural models, are all large and positive, supporting a sizeable amount of valid variance in the measures.

The extended model estimation, including the path coefficients and indicator loadings, is presented in Figure 4.5. It should be noted that the measurement loadings are all large and positive. The measurement loadings are all greater than the path coefficients, supporting the discriminant validity in the structural portion of the model. However, due to the influence of singularity in the concrete drivers, the loadings on each, by definition, are (1.0). As a result, the loadings are higher than each of their paths.

Figure 4.5. Results of the Extended Model Estimation Using the Hold Out Subsample



As predicted, the results of path coefficients showed that Number of UM Degrees (.305) and Number of Non-UM Degrees (.124) had a positive effect on Capacity to Give. As mentioned, it seems logical that the value of increased education should translate into increased earning power. Having a parent who attended the University of Michigan (.035) and being married (.079) also had positive influences on Capacity to Give. In many instances, being married might yield a higher household income and having a parent who received a good education (and, therefore, had reasonable earning power) might also influence Capacity to Give.

The Number of Student Activities (.053), Spouse Attended UM (.041), and Number of Children who Attended UM, (.041) all had small to negligible effects on Capacity to Give. The Number of Years at UM (–.306), Number of Children (–.095), Sex (–.380), and Age (–.166) all had negative effects on Capacity to Give. The Number of Years at UM appears to have had a negative effect on Capacity to Give, perhaps because years in school represent lost earnings. As previously reported in the prior subsample, the Sex measurement variable had a large negative effect on Capacity to Give. In this study, this may be due to the gender bias in the gift crediting system that was in place at the time these data were collected. The large negative path is also due to a greater number of male donors in the study sample. Spouse Attended UM was not a highly stable indicator, so strong conclusions, as in the primary subsample, are not meaningful.

With regard to Motivation to Give results, the Number of Student Activities (.286) had a large positive effect on Motivation to Give, followed by Number of Children who Attended UM (.174) and Number of Degrees from UM (.126), as was expected.

The Number of Non-UM Degrees (.018), Spouse Attended UM (.030), Parent Attended UM (.033), Number of Children (.025), Age (.086) and Marital Status (.058) all had small to negligible effects on Motivation to Give.

The Number of Years at UM (–.100) had a negative effect on Motivation to Give. It appears that, similar to the influence this measure had on Capacity to Give, the length of time required to earn a degree may be seen as too long by graduates. The Sex measurement variable

(–.113) also had a negative effect on Motivation to Give. As reported earlier, this is an artifact of the gender bias in the gift crediting system and the oversampling of male donors in the study.

The extended model results of the hold out sample show an R^2 of (.27) for Capacity to Give, R^2 of (.14) for Motivation to Give and R^2 of (.15) for Alumni/ae Gift Giving Behavior. These results are slightly higher on Capacity to Give but lower on Motivation to Give and Alumni/ae Gift Giving Behavior when compared to the primary subsample.

Due to the effects of singularity of the concrete drivers in this model, the fit statistics would be misleading. Therefore, they are not provided as an estimate of model fit. However, from a practical standpoint, the addition of the drivers to the model provides some interesting insight into how a change in one of the drivers translates into a change in Alumni/ae Gift Giving Behavior. Additional details and examples of this *what if analysis* capability will be included in the following chapter.

Consistency Across Samples

To illustrate the consistency of the data from the 1% sample to the subsample level the following tables are presented. Table 4.4 is the comparison of path coefficients across the four samples—primary 1% sample (N=1,064), primary subsample (N=511), 1% hold out sample (N=1,017), and hold out subsample (N=459). This is followed by Table 4.5, a correlation matrix of the path coefficients across the four samples that gives a Pearson r to show the level of correlation (i.e., consistency) among the four samples. Table 4.6 is a comparison of loadings for the measurement variables across the four samples. This is followed by Table 4.7, a correlation matrix of the measurement variable loadings across the four samples that gives a Pearson r to show the level of correlation (i.e., consistency).

Table 4.4. A Comparison of Path Coefficients Across Samples

Path Coefficients	Primary Sample (N=1,064)	Hold Out Sample (N=1,017)	Primary Subsample (N=511)	Hold Out Subsample (N=459)
1. CTG—AGGB	(.319)	(.297)	(.341)	(.296)
2. MTG—AGGB	(.274)	(.198)	(.298)	(.197)
AI—CTG				
3. Number of UM Degrees	(.263)	(.277)	(.245)	(.305)
4. Number of Years at UM	(-.255)	(-.284)	(-.259)	(-.306)
5. Number of Non-UM Degrees	(.090)	(.079)	(.001)	(.124)
AI—MTG				
6. Number of UM Degrees	(.087)	(.072)	(.152)	(.126)
7. Number of Years at UM	(-.074)	(-.103)	(-.128)	(-.100)
8. Number of Non-UM Degrees	(.017)	(.020)	(.111)	(.124)
SI—CTG				
9. Number of Student Activities	(.042)	(.024)	(.001)	(.053)
10. Child Attended UM	(.034)	(.081)	(.024)	(.041)
11. Parent Attended UM	(.076)	(.042)	(.089)	(.035)
12. Spouse Attended UM	(-.083)	(.066)	(-.060)	(.041)
SI—MTG				
13. Number of Student Activities	(.283)	(.252)	(.279)	(.286)
14. Child Attended UM	(.107)	(.115)	(.169)	(.174)
15. Parent Attended UM	(.011)	(.054)	(.031)	(.033)
16. Spouse Attended UM	(-.006)	(.079)	(-.008)	(.030)
Demographics—CTG				
17. Sex	(-.305)	(-.362)	(-.329)	(-.380)
18. Age	(-.079)	(-.110)	(-.082)	(-.166)
19. Marital Status	(.118)	(.118)	(.099)	(.079)
20. Number of Children	(.045)	(-.029)	(.002)	(-.095)
Demographics—MTG				
21. Sex	(-.057)	(-.100)	(-.055)	(-.113)
22. Age	(-.014)	(.010)	(-.004)	(.086)
23. Marital Status	(.011)	(.014)	(.047)	(.058)
24. Number of Children	(-.033)	(-.009)	(.033)	(.025)

Table 4.5. A Correlation Matrix of Path Coefficients Across Samples

	Primary Sample (N=1,064)	Hold Out Sample (N=1,017)	Primary Subsample (N=511)	Hold Out Subsample (N=459)
Primary Sample	1.000			
Hold Out Sample	0.947	1.000		
Primary Subsample	0.966	0.935	1.000	
Hold Out Subsample	0.921	0.967	0.935	1.000

Table 4.6. A Comparison of Measurement Variable Loadings Across Samples

	Primary Sample (N=1,064)	Hold Out Sample (N=1,017)	Primary Subsample (N=511)	Hold Out Subsample (N=459)
1. Annual Personal Income	.935	.945	.936	.934
2. Annual Household Income	.830	.777	.837	.770
3. Current Enrollment	.466	.482	.445	.520
4. Number of Alumni/ae Activities	.728	.789	.765	.845
5. General Attitude Toward U.M.	.662	.630	.656	.633
6. Preparation for Life	.688	.660	.629	.599
7. Preparation for Career	.540	.480	.559	.443
8. Major Donor	.646	.600	.682	.583
9. Gift Total	.467	.582	.796	.726
10. Number of Gifts	.892	.922	.867	.961
11. Number of Years Giving	.861	.888	.869	.901

Table 4.7. A Correlation Matrix of Loadings Across Samples

	Primary Sample (N=1,064)	Hold Out Sample (N=1,017)	Primary Subsample (N=511)	Hold Out Subsample (N=459)
Primary Sample	1.000			
Hold Out Sample	0.948	1.000		
Primary Subsample	0.792	0.884	1.000	
Hold Out Subsample	0.811	0.950	0.911	1.000

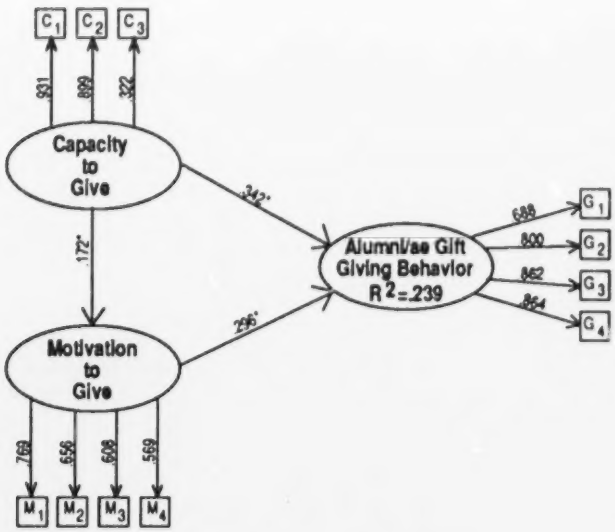
Results of the Revised Structural Theoretical Model on the Primary Subsample

The results of the theoretical models presented earlier in this chapter showed that there was a substantial residual covariance that existed between Capacity to Give and Motivation to Give after the models were estimated. The residuals suggested that a relationship exists between these two latent constructs that the prior theoretical models had not specified—this was the path between Capacity to Give and Motivation to Give. Our initial hypothesis that the interaction of these two constructs would combine to allow one latent variable to unlock the power of the other to explain Alumni/ae Gift Giving Behavior was not supported by the data. Therefore, the interaction relationship between these two latent variables had to be rejected.

The only other possible relationship that could be at work between these two constructs was a *mediating effects relationship* such that one of the constructs had an indirect effect on Alumni/ae Gift Giving Behavior, in addition to its direct effect. The two possible mediating relationships that could exist are: (1) that a higher level of Motivation to Give results in making more money, or (2) an increase in Capacity to Give stimulates one's Motivation to Give.

In reviewing these two options it becomes clear that only one direction makes sense, the latter. That is, an increase in Capacity to Give stimulates one's Motivation to Give. The data from these analyses of the primary and hold subsamples, therefore, strongly suggest the specification of the last path among these three latent variables. In other words, our theoretical model should also contain a path showing a mediating effect from Capacity to Give on Motivation to Give in addition to the two main effects of Capacity to Give and Motivation to Give on Alumni/ae Gift Giving Behavior. Our revised structural theoretical model, then, specifies this additional path between Capacity to Give and Motivation to Give as a mediating effect (indirect effect) of Capacity to Give on Motivation to Give such that when one's Capacity to Give increases, this stimulates one's Motivation to Give (see Figure 4.6).

Figure 4.6. Revised Structural Theoretical Model Estimation Using the Primary Subsample



Results of the revised structural theoretical model estimation using the primary subsample show that all of the measurement variable loadings are large and positive, again

supporting a sizable amount of valid variance in the measures. The measurement loadings are all greater than the path coefficients, supporting the discriminant validity of the model. The communalities for the individual measures are high for all the measures with the exception of Current Enrollment (.103). Calculation of the (S-Θ)/S shows that the outer model explains 60% of the variable covariance. Like the prior theoretical model, these results indicate the measurement portion of the model is well supported.

As in the prior theoretical model, Capacity to Give has a slightly greater effect on Alumni/ae Gift Giving Behavior (.342) than does Motivation to Give (.296). The inner model, or structural model, reveals an R^2 of (.239) for Alumni/ae Gift Giving Behavior. Calculation of the (S-Θ)/S for the inner model is no longer meaningful in that 100% of the covariance is explained because all possible relationships among the three variables have been specified.

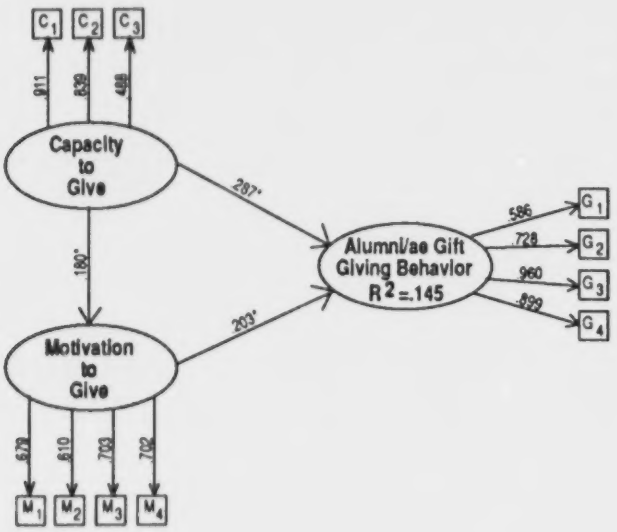
As in the structural theoretical models presented earlier in the chapter, simple linear models were used to examine the significance of the paths in the model. An examination of the paths shows that the three paths specified by the model—Capacity to Give on Alumni/ae Gift Giving Behavior, Motivation to Give on Alumni/ae Gift Giving Behavior, and Capacity to Give on Motivation to Give—are all significant at the .05 level. The results showed the significance of Capacity to Give on Alumni/ae Gift Giving Behavior of ($F=42.172$, $P< 0.001$), Motivation to Give on Alumni Gift Giving Behavior of ($F=26.041$, $P<0.001$), and the significance of Capacity to Give on Motivation to Give of ($F=10.131$, $P<.01$).

Results of the Revised Structural Theoretical Model on the Hold Out Subsample

Results of the revised structural theoretical model estimation show that all of the measurement variable loadings are large and positive, again supporting a sizable amount of valid variance in the measures (see Figure 4.7). The measurement loadings are all greater than the path coefficients, supporting the discriminant validity of the model. The communalities for the individual measures are high for all the measures with the exception of Current

Enrollment (.238). Calculation of the (S-Θ)/S shows that the outer model explains 60% of the variable covariance. Like the primary subsample just presented and the prior theoretical models, these results indicate the measurement portion of the model is well supported.

Figure 4.7. Revised Structural Theoretical Model Estimation Using the Hold Out Subsample



As in the primary subsample, Capacity to Give has a slightly greater effect on Alumni/ae Gift Giving Behavior (.287) than does Motivation to Give (.203). The inner model, or structural model, reveals an R^2 of (.145) for Alumni/ae Gift Giving Behavior. Calculation of the (S-Θ)/S for the inner model is no longer meaningful in that 100% of the covariance is explained because all possible relationships among the three variables have been specified.

As in the models presented earlier, simple linear models were used to calculate the significance of paths in the models. An examination of the paths shows that the three paths specified by the model—Capacity to Give on Alumni/ae Gift Giving Behavior, Motivation to Give on Alumni/ae Gift Giving Behavior, and Capacity to Give on Motivation to Give—are all significant at the .05 level. The results showed the significance of Capacity to Give on

Alumni/ae Gift Giving Behavior of (F=16.543, P< 0.001) and Motivation to Give on Alumni Gift Giving Behavior of (F=6.760, P<0.001), and the significance of Capacity to Give on Motivation to Give of (F=10.257, P< .001).

In summary, the results of the revised theoretical model support the hypothesis that a relationship between Capacity to Give and Motivation to Give does exist. It is not an interaction effect as originally hypothesized, but a mediating effect which is quite different. This revised theoretical model does not specify that there must be some level of Capacity to Give and Motivation to Give in order for one to unlock the power of the other. Rather, it indicates that Capacity to Give both stimulates Motivation to Give as an indirect effect on Alumni/ae Gift Giving Behavior and has a direct effect on Alumni/ae Gift Giving Behavior. This is another important theoretical finding of this study.

The revised theoretical models were estimated on the four samples of the study, primary sample (N=1,064), hold out sample (N=1,017), primary subsample (N=511), and hold out subsample (N=459). As was the case in the prior model estimations reported in the Consistency Across Samples section, the results of these model estimations were also consistent across these four samples.

Discussion of Overall Results

Overall, analyses showed strong similarities in results across samples (see Table 4.4 and Table 4.6). The strong fit of inner models, along with the significance, size and direction of paths, suggests that Capacity to Give and Motivation to Give do indeed have an effect on Alumni/ae Gift Giving Behavior. The amount of variance explained in the interaction models compared to the main effects models did not support the contention that the Interaction of Capacity to Give and Motivation to Give would produce a substantially greater understanding of why alumni/ae make financial contributions to their alma maters. Results of the revised structural theoretical models did show that a relationship between Capacity to Give and

Motivation to Give does exist—not as an interaction effect, rather, as a mediating effect. This relationship is such that an increase in Capacity to Give stimulates Motivation to Give as a mediating (or indirect) effect on Alumni/ae Gift Giving Behavior in addition to having a direct effect on Alumni/ae Gift Giving Behavior. These were two of the important theoretical findings of this study.

The remainder of this chapter will provide a discussion of the results from the analyses detailed earlier in the chapter. The discussion will first address evaluation of model fit and then look at the results in terms of the hypotheses. The discussion will proceed by comparing and contrasting the results from the models for the primary subsample and the hold out subsample. Finally, a summary of findings will be presented. An overall summary, implications, and recommendations for future research will be provided in the next chapter.

As stated previously, based on the results of interaction model estimates, there is no support for the theoretical contention that the interaction of this study's two main endogenous variables, Capacity to Give and Motivation to Give, produces greater explanatory power for why alumni/ae make financial contributions to their alma maters. Model fit statistics $(S-\Theta)/S$ for the structural theoretical models of this study do, however, paint a very encouraging picture for an exploratory study of this nature. These fit statistics are reasonably robust across the two samples. The results for the inner models (73% for the primary sample and 60% for the hold out sample) show support for the hypothesized relationships between the latent constructs. The outer model results $(S-\Theta)/S$ (60% for the primary sample and 59% for the hold out sample) show reasonably good measurement of the study's constructs. These fit statistics must also be evaluated in conjunction with the sign and significance which may or may not support specific hypotheses.

Table 4.8. Summary of Hypothesis Testing

Hypothesis (Expected Relationship)	Main Effects Model Primary Subsample	Main Effects Model Hold Out Subsample
H1: CTG—AGGB (+)	Accept*	Accept*
H2: MTG—AGGB (+)	Accept*	Accept*
H3: CTG x MTG—AGGB (+)	Reject	Reject
H4: AI—CTG (+)	No Result	No Result
H5: AI—MTG (+)	No Result	No Result
H6: SI—CTG (+)	No Result	No Result
H7: SI—MTG (+)	No Result	No Result

* Path was significant at p<.05

Hypothesis 1

The results for Hypothesis 1 (predicting a positive Capacity to Give — Alumni/ae Gift Giving Behavior relationship) show strongly similar findings across the two samples. In each model the path is significant and is in the expected direction. In the primary subsample the path is (.341) and in the hold out subsample the path is (.296). This finding supports our contention that Capacity to Give would have a strong positive effect on Alumni/ae Gift Giving Behavior.

Hypothesis 2

The results for Hypothesis 2 (predicting a positive Motivation to Give — Alumni/ae Gift Giving Behavior relationship) show that, like Hypothesis 1, there is a strong positive

relationship between the two constructs. The results show similarity between the two samples. In each model the path is significant and in the expected direction. In the primary subsample the path is (.298) and in the hold out subsample the path is (.197). The effect of Motivation to Give, while similar in both models, appears to be somewhat stronger in the primary subsample than in the hold out subsample.

Hypothesis 3

The results of Hypothesis 3 (predicting a positive Interaction of Capacity to Give Index and Motivation to Give Index — Alumni/ae Gift Giving Behavior relationship) show we reject this hypothesis in both samples due to a lack of significance in its paths and to the lack of explanatory power it added to the model. Results of the interaction model suggested there was a positive relationship between the Interaction construct and Alumni/ae Gift Giving Behavior, but the size of the relationship was so small that it was insignificant. This model and hypothesis were, therefore, rejected.

Hypothesis 4

Hypothesis 4 (predicting a positive Academic Integration — Capacity to Give relationship) showed no result in either sample. It was not possible to test this hypothesis because measures of the Academic Integration construct did not correlate well enough to form a single identifiable construct. Thus, Academic Integration, as it was proposed in this study does not exist.

While it is not possible to show the relationship of an Academic Integration construct on Capacity to Give from a theoretical standpoint, it is possible to show from a practical standpoint how the concrete drivers that would have made up this latent variable affected Capacity to Give. In both our primary subsample and our hold out subsample, Number of UM

Degrees had a positive effect on Capacity to Give, (.245) and (.305) respectively. Number of Non-UM Degrees also had a positive effect on Capacity to Give in both samples, (.111) and (.124). Both of these indicators suggest that the more education an individual has the higher their earning potential is likely to be.

The third indicator, Number of Years at UM, had a substantial relationship to Capacity to Give, but not in the expected direction. In both samples Number of Years at UM had a negative effect on Capacity to Give, (–.259) in the primary subsample and (–.306) in the hold out subsample. This might suggest that while more education has a positive impact on earning potential, the length of time in school has a negative impact due to loss of earnings during the educational process.

Hypothesis 5

Hypothesis 5 (predicting a positive Academic Integration — Motivation to Give relationship) showed no result in either sample. It was not possible to test this hypothesis because measures of the Academic Integration construct did not correlate well enough to form a single identifiable construct. Thus, as is the case in Hypothesis 4, Academic Integration, as it was proposed in this study, does not exist.

Practical implications of the relationships of concrete drivers that would have made up the Academic Integration latent variable show that Number of UM Degrees had a positive effect on Motivation to Give, (.152) and (.126). This would suggest that the more degrees earned from an institution the higher one's Motivation to Give is likely to be. This makes conceptual sense from a customer satisfaction standpoint. One is more likely to make repeat purchases of a product or service if satisfied with the original purchase.

The Number of Non-UM Degrees produced an inconclusive result across the two samples. In the primary subsample it had a small positive effect on Motivation to Give (.001) and in the

hold out subsample it had a small negative effect (–.018). Because of this inconclusive result it is difficult to speculate on what effect this driver has on Motivation to Give.

The Number of Years at UM produced consistent results across the two samples, but not in the expected direction. Number of Years at UM had a negative effect on Motivation to Give in both samples, (–.128) and (–.100). From a practical standpoint this might suggest that university curriculum planners should review degree requirements and the length of time to earn a degree to see if the time requirements are reasonable and appropriate.

Hypothesis 6

Hypothesis 6 (predicting a positive Social Integration — Capacity to Give relationship) showed no result in either sample. It was not possible to test this hypothesis because measures of the Social Integration construct did not correlate well enough to form a single identifiable construct. Thus, Social Integration, as it was proposed in this study, does not exist.

Practical implications of the relationships of concrete drivers that would have made up the Social Integration latent variable show that Number of Student Activities (.001) (.053), Number of Children who Attended UM (.024) (.041), and Parent Attended UM (.089) (.035) all had a small positive effect on Capacity to Give across both samples. In general, these indicators do not appear to have a strong influence on Capacity to Give. The only one of the three drivers that appears to have much of an effect is Parent Attended UM. One might conclude that if a parent attended the university the parent would have received a quality education and, thus, be able to earn a good income.

The fourth indicator that would have been associated with the Social Integration construct, Spouse Attended UM, appears to show inconsistent results across the two samples. In the primary subsample it has a negative effect on Capacity to Give (–.060) and a positive effect

on Capacity to Give in the hold out subsample (.041). The instability of this driver suggests that it provides an unreliable foundation on which to base any implications.

Hypothesis 7

Hypothesis 7 (predicting a positive Social Integration — Motivation to Give relationship) showed no result in either sample. It was not possible to test this hypothesis because measures of the Social Integration construct did not correlate well enough to form a single identifiable construct. Thus, Social Integration, as it was proposed in this study, does not exist.

Practical implications of the concrete drivers that would have made up the Social Integration construct indicate that Number of Student Activities had a large positive effect on Motivation to Give across both samples, (.279) and (.286). This would suggest that the more extracurricular activities that one participates in the higher their Motivation to Give. An obvious implication of this would be that institutions should encourage students to get involved in extracurricular activities as a way to increase their long-term Motivation to Give.

The Number of Children who Attended UM and Parent Attended UM both appear to have a positive effect on Motivation to Give across the two samples, (.169) (.174) and (.031) (.033) respectively. These findings suggest the importance of generational attendance as an influence on Motivation to Give. Clearly, having children who also attend the university has a strong positive effect on Motivation to Give. This finding provides support for a parent's giving program. It also suggests that alumni/ae should be encouraged to have their children consider the University of Michigan among their college choices. Parental attendance also appears to have a small positive effect on Motivation to Give.

Spouse Attended UM, as in Hypothesis 6, produced inconsistent results across the two samples. In the primary subsample, spousal attendance had a small negative effect on Motivation to Give (–.008), and in the hold out subsample it had a small positive effect on

Motivation to Give (.030). This finding suggests that this driver is unstable and does not provide an adequate foundation upon which to base any implications.

Effects of Demographic Drivers on Capacity to Give

While there were no hypotheses that specifically addressed the impact of demographic indicators on Capacity to Give, four traditionally important demographic indicators were added to the estimation of the extended PLS model to determine what effect, if any, they would have on Capacity to Give and Motivation to Give. These included: Sex, Age, Marital Status, and Number of Children.

Sex and Age both appeared to have a negative effect on Capacity to Give across both samples, (–.329) (–.380) and (–.082) (–.116) respectively. Of the two indicators, Sex had a particularly large negative effect on Capacity to Give. However, the gender bias in the University's gift crediting system during the period these data were collected prevents this from presenting a valid indication of the impact of Sex on Capacity to Give. Age also appeared to have a smaller negative effect on Capacity to Give. The implication would be that alumnae do not have the same level of Capacity to Give as their alumni counterparts. This may or may not be true, but these data do not provide a reliable basis on which to make that type of determination. The other implication would be that younger alumni/ae do not have the Capacity to Give that older alumni/ae have. This would support conventional wisdom among researchers and fund raisers alike.

Marital Status appeared to have a small positive effect across both samples, (.099) (.079). This would suggest that being married would potentially increase the household income from which an alumnus/a could draw to make a financial contribution.

The last demographic indicator, Number of Children, proved to be an unstable indicator. In the primary subsample it had a small positive effect on Capacity to Give (.002), and in the hold out subsample it had a small negative effect (–.095). The inconsistency of these

results suggests these data do not provide a basis upon which to draw any implications regarding the effect of the Number of Children on Capacity to Give.

Effects of Demographic Drivers on Motivation to Give

Sex appears to have a negative effect on Motivation to Give across both samples of our study. Sex has a negative effect on Motivation to Give in our primary subsample (–.055) and a negative effect in the hold out subsample (–.113). Again, due to the gender bias in the gift crediting system that was in place at the time these data were collected, these data do not provide a basis upon which to develop any practical or theoretical implications.

The effect of both Age and Marital Status on Motivation to Give produced inconsistent results. In the primary subsample Age had a small negative effect (–.004) on Motivation to Give. In the hold out subsample Age had a small positive effect on Motivation to Give (.086). In the primary subsample Marital Status had a small negative effect on Motivation to Give (–.047), and in the hold out subsample Marital Status had a small positive effect on Motivation to Give (.058). Like the Sex indicator mentioned previously, these data do not provide a basis upon which to develop any practical or theoretical implication of Age or Marital Status on Motivation to Give.

Lastly, the Number of Children appears to have a small positive affect on Motivation to Give across the two samples, (.033) and (.025). The lack of stability of this indicator on Capacity to Give also makes these findings somewhat suspect. Due to the instability of this driver on Capacity to Give, these data do not provide a basis on which to develop any practical or theoretical implication of the Number of Children on Motivation to Give.

Results of the Model Within the Model Analysis

In discussions with faculty members of this study dissertation committee, substantial interest and discussion developed around the possibility that the measurement variables selected to represent the ultimate endogenous construct, Alumni/ae Gift Giving Behavior, might, in themselves, be representative of a model of alumni/ae giving. It should be noted that this "model within the model analysis" is at a different level of analysis (or abstraction) than the previous models in which we operationalized the latent variable Alumni/ae Gift Giving Behavior, (i.e., it is more concrete). The concept behind this analysis is that at one theoretical level we use all these indicators to measure Alumni/ae Gift Giving Behavior. But at a more concrete level there may be a model within this model. To test this hypothesis, the following conceptual model was developed.

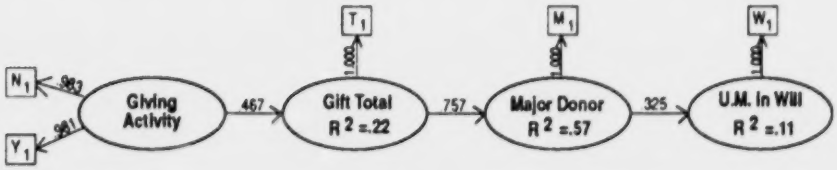
Figure 4.8 Conceptual Model of the Model Within the Model

The concept being explored in this structural model is that the Number of Gifts in Prior Years and Number of Years Making Gifts combine to form a latent construct called Giving Activity. Giving Activity leads to a latent construct called Gift Total. Gift Total then leads to the latent construct called Major Donor Status. Major Donor Status then leads to UM being placed in the alumnus/a's will. This model was estimated using both the primary subsample and the hold out subsample.

The primary subsample results showed that the path coefficients were large and positive throughout the model. The path coefficient (direct effects) of Giving Activity on Gift

Total was (.467), the path coefficient of Gift Total on Major Donor Status was (.757), and the path coefficient of Major Donor Status on UM in Will was (.325). Analysis of the Squared Multiple Correlations of the latent variables showed that Gift Total had an R^2 of (.22), Major Donor Status had an R^2 of (.57), and UM in Will had an R^2 of (.11). The loadings showed that Number of Gifts and Number of Years Giving loaded highly on Giving Activity, (.983) and (.981) respectively. The structural model fit statistics indicate that the inner model explains 87% of the variable covariance. These results suggest that the model fits quite well. However, it is also true to some extent that the model illustrates what might be deemed as "definitional truths" about alumni/ae giving activity. The results are nonetheless interesting and are presented in Figure 4.9.

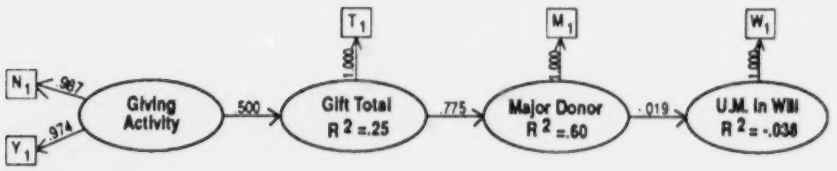
Figure 4.9 Results of the Model Within the Model Estimation Using the Primary Subsample



Results of the hold out subsample were consistent with those in the primary subsample, to a point. Like the primary subsample, the path coefficients were all large and positive. Giving Activity on Gift Total had a path coefficient of (.500), Gift Total on Major Donor Status had a path of (.775), and Major Donor Status on UM in Will had a path of (–.019). The result of this last path between Major Donor Status and UM in Will is where the model did not hold up in the second sample. This result suggested that this relationship may exist, but the number of donors who had put the University of Michigan in their wills was simply too small to support the complete conceptualization. The R^2 in Gift Total was (.25) and the R^2 in Major Donor

Status was (.60). These findings were quite consistent with the primary subsample. The loadings on Giving Activity were also large and positive. The inner model fit statistics indicate that the model explains 90% of the variable covariance. These results confirm the hypothesis that there was a model operating within our Alumni/ae Gift Giving Behavior latent variable. This may be an avenue worthy of more substantial exploration in future research.

Figure 4.10 Results of the Model Within the Model Estimation Using the Hold Out Subsample



Summary

This chapter has presented a description of the sample, a discussion of the Partial Least Squares method of analysis, estimation results from five different sets of PLS models, and results of the study hypotheses.

Results of the structural theoretical model showed that Capacity to Give had a slightly greater effect on Alumni/ae Gift Giving Behavior than did Motivation to Give. The squared multiple correlations showed that these two latent variables accounted for or explained 25% of the variance in Alumni/ae Gift Giving Behavior. A substantial inner model residual was found for the unspecified path between Capacity to Give and Motivation to Give in this model. This residual suggested that these two latent variables were related.

Results of the interaction model showed that the addition of the Interaction of Capacity to Give Index and Motivation to Give Index latent variable only marginally

increased the amount of variance explained in Alumni/ae Gift Giving Behavior. Based on the insignificant amount of additional explanatory power this term added over and above the main effects of Capacity to Give alone and Motivation to Give, alone, the interaction model was rejected.

Results of an extended model were presented to show the effect that the measures that would have made up the two latent variables, Academic Integration and Social Integration, would have in the model. Because these two latent variables did not form (suggesting that they do not exist in these data) the measurement variables were included in the extended model as concrete drivers of Alumni/ae Gift Giving Behavior to illustrate their effect on the models endogenous constructs.

Results of a revised structural theoretical model were also presented. After the interaction model had been rejected and the original structural theoretical model found a relationship between Capacity to Give and Motivation to Give that had not been specified, this model was estimated. The revised structural theoretical model was estimated to see if there was a mediating or indirect effect of Capacity to Give on Alumni/ae Gift Giving Behavior through Motivation to Give, in addition to the main effects of Capacity to Give and Motivation to Give on Alumni/ae Gift Giving Behavior. These data suggested that this was, in fact, the case.

Lastly, a model was estimated to test whether the measures that made up the Alumni/ae Gift Giving Behavior latent variable might in and of themselves constitute a model of alumni/ae giving. A conceptual model was developed and estimated to test the effect of the four measures of Alumni/ae Gift Giving Behavior on the decision of an alumnus/a placing the University in their will. The results of the primary subsample suggested that this might, in fact, be the case. However, this finding was not confirmed in the model estimation of the hold out subsample.

Collectively, then, these findings suggested that the main effects of Capacity to Give and Motivation to Give are effective constructs in predicting or explaining Alumni/ae Gift

Giving Behavior. The interaction model results suggest that the nature of the relationship between Capacity to Give and Motivation to Give was not an interaction or moderating relationship as had been hypothesized. That is, one latent variable is not a necessary condition for the other. The revised structural theoretical model results suggested that in addition to the main effects of Capacity to Give and Motivation to Give on Alumni/ae Gift Giving Behavior, there also exists a mediating or indirect effect of Capacity to Give on Alumni/ae Gift Giving Behavior through Motivation to Give.

Results of the hypothesis testing, then, showed that the hypotheses that Capacity to Give and Motivation to Give will each have a positive effect on Alumni/ae Gift Giving Behavior were accepted. The hypothesis that the interaction term would have a positive effect on Alumni/ae Gift Giving Behavior was rejected due to the insignificant result of the interaction model. And, lastly, the four hypotheses that would have tested the effect of Academic Integration and Social Integration in the model were not tested because these two latent variables did not form.

Chapter 5 will present a summary, implications, and recommendations for future research.

CHAPTER V

SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS FOR FUTURE RESEARCH

This chapter will present a summary of the dissertation and results, suggest theoretical and practical implications for the findings, discuss the strengths and weaknesses of the research, present recommendations for future research, and present a speculative perspective on building effective alumni/ae fund raising programs.

Summary

This dissertation expands both the theoretical and empirical study of alumni/ae fund raising by studying gift giving behavior in the context of an original research design. A model was developed which expands on traditional approaches to alumni research using simple linear models to the development of an interactive structural equation model using a Partial Least Squares (PLS) analysis. PLS, often referred to as a second generation multivariate analysis technique, has the capability to analyze multiple predictor variables, unobservable theoretical variables and errors in measurement, and has extensive power to unite theory and statistical analysis. The application of second generation multivariate analysis methods (structural equation models in particular) is becoming increasingly popular in many areas of social science research. However, this study appears to be the first to apply a Partial Least Squares analysis to the study of alumni/ae gift giving behavior.

The sample for this study consisted of 110,010 respondents to a 1986 University of Michigan Alumni Census questionnaire. This figure represented a 44% response rate to a

mailing to 250,000 alumni. Two 1% random samples were drawn from the 110,010 respondents to produce a primary sample of 1,064 and a hold out sample of 1,017. PLS models were estimated using both the primary and hold out samples and subsets of these two samples. The primary subsample consisted of 511 cases and the hold out subsample consisted of 459 cases.

This study developed a conceptual model and approach for predicting Alumni/ae Gift Giving Behavior. Specifically, the model sought to advance the understanding of how Capacity to Give, Motivation to Give, and their Interaction affect Alumni/ae Gift Giving Behavior. It was hypothesized that Capacity to Give and Motivation to Give would account for a substantial amount of the variance in our ultimate endogenous construct, Alumni/ae Gift Giving Behavior. It was further hypothesized that Capacity to Give and Motivation to Give would interact, the result being that one latent variable would unlock the power of the other in increasing the amount of variance explained in Alumni/ae Gift Giving Behavior. The structural theoretical model provided a main effects version of the model (Capacity to Give and Motivation to Give, alone). The interaction model provided the two main effects plus added the Interaction latent variable (Capacity to Give, Motivation to Give, and the Interaction of Capacity to Give Index and Motivation to Give Index). Each of these two sets of models was estimated using the PLS algorithm as was a revised structural theoretical model. At the end of chapter 4, one additional model was estimated to explore whether the measurement variables in our Alumni/ae Gift Giving Behavior latent variable also represented a model within the overall model that might explain a significant amount of variance in the decision to name the University in one's will.

Data analysis using the Partial Least Squares structural equation modeling revealed a variety of interesting results for this exploratory study. The four separate models (the structural theoretical model, the interaction model, the revised structural theoretical model, and the model within the model) were all estimated using the primary subsample and hold out subsample. The first major finding of the study was that the inclusion of an interaction term did not significantly increase the amount of variance explained in our ultimate endogenous

construct, Alumni/ae Gift Giving Behavior, as had been predicted. Results of the model estimations show that, in our primary subsample, the interaction model explained (.262) of the variance in giving. In the hold out subsample, the interaction model explained (.159) of the variance in giving. These results were then compared to model estimates of the structural theoretical (main effects) model. The main effects model showed that the amount of variance in Alumni/ae Gift Giving Behavior explained in the primary subsample was (.246) and the amount of variance in Alumni/ae Gift Giving Behavior explained in the hold out subsample was (.146). So, the amount of variance explained in the interaction model primary subsample was only (.016) higher than in the main effects model; the amount of variance explained in the interaction model hold out subsample was only (.013) higher than in the main effects model. The analysis of path coefficients also showed that, in the interaction model, the path from the Interaction latent variable to Alumni/ae Gift Giving Behavior only had a path coefficient of (.014) in the primary subsample and a path coefficient of (.028) in the hold out subsample. This finding showed that the inclusion of the Interaction latent variable did not add significant explanatory power to the model. The interaction model was rejected on the basis of these results. While this was not the expected outcome, the results are nonetheless interesting. From a theoretical standpoint, in this study we now know that the hypothesized "unlocking effect" that combining one's Capacity to Give with one's Motivation to Give does not tell us anything that the main effects of Capacity to Give and Motivation to Give do not already tell us. This is a significant finding. This finding is significant because prior research had hypothesized that an interaction term such as the one included in these models would substantially improve the ability to explain Alumni/ae Gift Giving Behavior. These results indicate that is not the case with our data.

Thirty-five variables were selected from the 194 that were contained in the original data set. These variables consisted of responses to a four-page mailed questionnaire, along with degree information and giving history information from the University of Michigan's alumni donor data base. The original conceptual model proposed in the study had to be

substantially modified. The two exogenous latent variables proposed in the model, Academic Integration and Social Integration, did not correlate well enough together to actually form latent variables, suggesting that these two constructs do not exist in this study. However, model estimates showed that the measurement loadings for the other three latent variables in the model—Capacity to Give, Motivation to Give, and Alumni/ae Gift Giving Behavior—were all higher than their path coefficients which demonstrated that each had discriminant or construct validity. Model estimates were then specified for the structural portion of the model using our primary and hold out subsamples. Basic findings of the model were robust across the two samples. Based on the percentage of variable covariance explained, the inner models (structural models) did a good job of explaining the hypothesized relationships between constructs, $(S-\Theta)/S$ ranged from 73% in the primary subsample to 60% in the hold out subsample. This suggested that the conceptualization of Capacity to Give and Motivation to Give on Alumni/ae Gift Giving Behavior had merit. Outer model (measurement model) results were also consistent across the two samples. The model did a moderate job of explaining outer variable covariance, $(S-\Theta)/S$ ranged from 60% for the primary subsample to 59% for the hold out subsample.

One additional finding of the structural theoretical model estimation was a substantial residual covariance between Capacity to Give and Motivation to Give, (.146) in the primary subsample and (.178) in the hold out subsample. This suggested that the models were technically misspecified. The substantial residual between these two latent constructs suggests that Capacity to Give and Motivation to Give are related in some way.

The results of the structural theoretical model were highly consistent across the two samples and offer some other interesting findings. First, we note the CTG — AGGB path: (.346) in the primary subsample and (.284) in the hold out subsample. Both of these results were significant at the $p<.05$ level. The path from MTG — AGGB was (.308) in the primary subsample and (.210) in the hold out subsample. Again, both of these paths were significant at the $p<.05$ level. In both samples, the effect of Capacity to Give was stronger than the effect of

Motivation to Give. Loadings in the models indicated the strength of the effect of particular measurement variables in the model. Two measures collected in this study that have not been used in prior research are Personal Income and Household Income. As expected, Personal Income had a strong effect in the model with loadings of (.930) in the primary subsample and (.900) in the hold out subsample. Household Income also loaded highly, (.891) in the primary subsample and (.845) in the hold out subsample. While prior research has not included direct measures of income, these results show how important they are in predicting alumni/ae Capacity to Give. The success of this data collection effort should encourage other institutions to attempt to collect this type of information when surveying their alumni/ae rather than collecting less direct measures out of fear of angering their constituents. This type of data collection is a common practice in most areas of consumer research and this study has shown that these measures can be collected successfully when surveying alumni/ae.

Other measures that confirmed the findings of prior research were Number of Alumni/ae Activities, General Attitude toward the Institution, attitudes toward the value of one's education as a Preparation for Life and as a Preparation for Career. Number of Alumni/ae Activities had a loading of (.807) in our primary subsample and (.731) in our hold out subsample. This finding suggested that alumni/ae participation and the degree of participation do have a large effect on one's Motivation to Give. General Attitude toward the Institution, and attitudes toward the value of one's education as a Preparation for Life and as a Preparation for Career also had effects ranging from (.686) as a high to (.463) as a low. These findings confirm the importance of these attitudinal measures in influencing alumni/ae Motivation to Give.

Variables not often mentioned in previous research but that proved to have an important influence in our model using primary and hold out subsamples were Number of Gifts, (.864) and (.959); Number of Years Giving, (.866) and (.899); and Gift Total, (.799) and (.729). These results suggest the importance of these variables as donors progress through the donor life cycle. These findings also suggest some interesting possibilities for exploring what factors

influence alumni/ae donors to continue to make donations to their alma maters over time after an initial giving decision has been made.

Extended models were then estimated using the PLS algorithm. Estimation of the extended models was complicated by the fact that our original exogenous constructs did not form. However, to illustrate the effect that these measurement variables would have on Alumni/ae Gift Giving Behavior, models were estimated for the primary and hold out subsamples using the measurement variables as a series of concrete drivers of Capacity to Give and Motivation to Give. Because of the effect of singularity on the individual measures in the model, model fit statistics were not meaningful. However, the results of the path coefficients provide insight into the magnitude of the effect these measures have on Capacity to Give and Motivation to Give and, ultimately, on Alumni/ae Gift Giving Behavior. As a part of this model estimation, four traditionally important demographic variables were added to the analysis to see what effect, if any, they would have in the model. These included Sex, Age, Marital Status, and Number of Children.

Estimations of the path coefficients from the drivers to Capacity to Give and Motivation to Give produced several interesting results. The Number of Student Activities, as indicated in prior research, had a large effect on Motivation to Give with path coefficients of (.279) in the primary subsample and (.286) in the hold out subsample. These results confirmed the findings of prior research that suggested student activity involvement had a positive effect on alumni/ae Motivation to Give.

Another result that confirmed prior research was the positive effect that Number of UM Degrees had on Capacity to Give and Motivation to Give. The influence of this measure was larger on Capacity to Give than on Motivation to Give which makes conceptual sense in that the more education an individual possesses, the greater their earning potential. Results of the paths showed Number of UM Degrees had path coefficients of (.245) in the primary subsample and (.305) in the hold out subsample on Capacity to Give. It also had paths of (.152) in the primary subsample and (.126) in the hold out subsample on Motivation to Give. This

suggested that the greater the number of degrees, the higher the alumnus/a's Capacity to Give and Motivation to Give. Number of Non-UM Degrees also had a positive effect on Capacity to Give, (.111) for the primary subsample and (.124) for the hold out subsample. This reinforced the findings of the preceding analysis. However, the Number of Non-UM Degrees had a negligible effect on Motivation to Give, as expected. Paths for the Number of Non-UM Degrees showed (.001) for the primary subsample and (.018) for the hold out subsample. Most of the other paths had either small positive or negligible effects on Capacity to Give, Motivation to Give, or both, with the exception of Sex which had a large negative effect (–.329) in the primary subsample and (–.380) in the hold out subsample. However, as previously reported, this is an artifact of a gender bias in the gift crediting system that was in place when these data were collected, as well as an oversampling of males and donors in the study sample. Uses for the path results from the extended models will be described further in the *Implications for Fund Raising Practitioners* section.

As mentioned earlier, the structural theoretical model estimations contained a substantial residual covariance between Capacity to Give and Motivation to Give. This suggested that the models were technically misspecified. The substantial residual between these two latent constructs suggests that Capacity to Give and Motivation to Give are related in some way. The data therefore strongly suggested the specification of the last path among these three latent variables. In reviewing the options for the nature of this relationship it was determined that Capacity to Give has a mediating (or indirect) effect on Alumni/ae Gift Giving Behavior through Motivation to Give. In other words, the data suggest that the study theoretical model should also contain a path showing a mediating effect from Capacity to Give on Motivation to Give in addition to the two direct effects of Capacity to Give and Motivation to Give on Alumni/ae Gift Giving Behavior. As a result, this path was added and a revised theoretical model was tested. Results from the two samples showed that there was support for the additional path in the model. Simple linear models were used to examine the significance of the paths. In both samples the mediating effect path was significant at the $p<.05$ level.

Calculation of the outer model fit statistics, which explained 60% of the variable covariance, showed that the measurement portion of the model is well supported in both samples. Calculation of the inner model fit statistic was no longer meaningful in that all the possible relationships among the three variables had been specified. Overall, then, the results of the revised theoretical models suggest strong support for the mediating effect of Capacity to Give on Alumni/ae Gift Giving Behavior through Motivation to Give. This is another significant theoretical finding of this study.

Lastly, during discussions with the faculty members directing this study the question was raised whether another model was operating within the conceptual model in the giving behavior latent variable. To explore whether this, in fact, was the case a conceptual model was developed to explore one possible set of relationships among these five measures. The conceptual model hypothesized was that two measurement variables, Number of Gifts and Number of Years Giving, form a latent variable called Giving Activity. Giving Activity, then, has a positive effect on Gift Total, Gift Total has a positive effect on Major Donor Status, and Major Donor Status has a positive effect on the University of Michigan being placed in the alumnus/a's will.

This model was estimated with the PLS program using the primary subsample and the hold out subsample. Results of the model on the primary subsample showed that Number of Gifts and Number of Years Giving loaded highly on Giving Activity (.983) and (.981) respectively. Path coefficients in the model showed the following results: the path from Giving Activity to Gift Total was (.467), Gift Total to Major Donor Status was (.757), Major Donor Status to UM in Will was (.325). The results of these path coefficients were all large and positive. This suggested support for the relationships conceptualized in the model. The R^2 for the ultimate endogenous variable, UM in Will was (.11), not an overwhelmingly large figure. Model fit statistics for the inner model revealed that the model explained 87% of variable covariance in the structural model. This also provided support for the conceptualization of the model.

Results of the model on the hold out subsample were consistent, but only to a point. As in the prior model, the loadings on Giving Activity were extremely high, (.987) and (.974). The path coefficient from Giving Activity to Gift Total was (.500), from Gift Total to Major Donor Status was (.775), and from Major Donor Status to UM in Will was (–.019). The result of this last path between Major Donor Status and UM in Will is where the model did not hold up in the second sample. This result suggested that this relationship may exist, but the number of donors who had put the University of Michigan in their wills was simply too small to support the complete conceptualization. The inner model statistic shows that the model explained 90% of the variable covariance in the model. The results of these two model estimations suggest that these variables may be important in future research in exploring why donors who make an initial decision to donate continue to do so. Further, these variables may also be important in understanding better what motivates alumni/ae to put their alma maters in their will. These preliminary findings suggest this may be a worthwhile focus for future research.

Theoretical Implications

This dissertation has theoretical implications for the study of alumni research, alumni/ae gift giving behavior and the study of fund raising overall. Regarding the application of structural equation models to the study of fund raising, this model has clearly demonstrated the power of second generation multivariate methods to unite theory and data, to explore theoretical relationships, and to incorporate unobservable variables into the study of alumni/ae gift giving behavior. The power of this analysis presents a useful set of opportunities for developing new knowledge in the field of fund raising research. The results of this study showed an effective operationalization of the conceptual model. The methods used to operationalize the study exceed those of prior research due to the use of structural equation modeling technology.

Beyond the theoretical implications that this new class of data analysis techniques holds for expanding fund raising research, this study has identified two major findings regarding the nature of the theoretical relationships between Capacity to Give and Motivation to Give in explaining or predicting Alumni/ae Gift Giving Behavior. The first significant theoretical finding of this study is that interaction constructs proposed by this study do not add significant explanatory power to our understanding of why alumni/ae make giving decisions. The data from this study suggest that we had incorrectly hypothesized the relationship between these two constructs as an interaction effect (i.e., one construct had the effect of unlocking the power of the other to explain alumni/ae giving). As a result, this hypothesis was rejected. The second major theoretical finding of this study came in analyzing the residual covariance that was left after estimating our initial theoretical models. We identified that there was a relationship between the Capacity to Give and Motivation to Give latent variables that we had not previously specified. A revised theoretical model was then developed and tested which suggests that the relationship between these two latent variables is a mediating effect rather than an interaction effect. In other words, in addition to the direct effects Capacity to Give and Motivation to Give have on Alumni/ae Gift Giving Behavior, Capacity to Give also has a mediating (or indirect) effect on Alumni/ae Gift Giving Behavior through Motivation to Give. This relationship can be described as an increase in Capacity to Give stimulating one's Motivation to Give (e.g., an increase in one's income draws out a Motivation to Give that may have been previously suppressed or dormant).

Another theoretical implication of this study is that the directly observable measurement variables selected to reflect latent constructs used in the model worked well. Results of this study indicate that Personal Income and Household Income are powerful and effective measures of alumni/ae Capacity to Give. Behavioral measures like Number of Alumni/ae Activities, and attitudinal measures such as General Attitude Toward the University, Preparation for Life, and Preparation for Career are effective measures of alumni/ae Motivation to Give. Other behavioral measures such as Number of Gifts, Number of

Years Giving, Gift Total, and Major Donor Status are effective measures of Alumni/ae Gift Giving Behavior.

Other measurement variables used in this study that were not a part of any latent construct but showed large effects on the model were: Number of Student Activities on alumni/ae Motivation to Give, Number of UM Degrees and Number of Non-UM Degrees on alumni/ae Capacity to Give. Other measurement variables having a positive effect on alumni/ae Motivation to Give were: Number of Children who Attended UM and Parent Attended UM.

Demographic measurement variables included in the study—Sex, Age, Marital Status, and Number of Children—had a negative or inconsistent effect on both alumni/ae Capacity to Give and Motivation to Give. It is unclear what effect the measurement variable, Sex, might have in another study, but due to the gender bias in the gift crediting system that was in place when these data were collected, it was not a valid indicator in this study.

Lastly, the results of this study clearly point to the fact that there are many other factors that must be considered in attempting to explain and predict alumni/ae gift giving behavior. The model proposed in this study explains 25% of the variance in Alumni/ae Gift Giving Behavior which is reasonable for a behavioral study of this type. However, it does point to the obvious fact that there is another 75% of the variance in Alumni/ae Gift Giving Behavior that is unexplained. Clearly, future research will have to identify other measures if this type of research is to explain more than one quarter of the variance in Alumni/ae Gift Giving Behavior.

Implications for Fund Raising Practitioners

What If Analysis

One of the proposed outcomes of this study was to carry out what was described as a *what if analysis*. The estimation of direct paths in the extended model makes it possible to gauge the effect of a change in one of the exogenous measures on Alumni/ae Gift Giving Behavior. The total effect that an increase or decrease in one of the drivers would have on Alumni/ae Gift Giving Behavior can be determined in our model through a series of five steps. The effect of a change in one of the drivers is multiplied by each of the path coefficients in the two main paths in the model and then summed. This results in the total effect on Alumni/ae Gift Giving Behavior. Two brief examples are presented to illustrate this *what if analysis* capability. The numbers presented in the following examples are taken from the extended model estimation shown graphically in Figure 4.4.

Example One. How would a 20% increase in the Number of Student Activities participated in affect the Gift Giving Behavior of an alumnus in our sample?

Step One. Multiply the (.20) increase by (the Number of Student Activities — Motivation to Give) path coefficient of (.279). This results in a (.0558) or 6% increase in Motivation to Give.

Step Two. Multiply the (.0558) increase in Motivation to Give by (the Motivation to Give — Alumni/ae Gift Giving Behavior) path of (.298). This results in a (.01663) or a 2% increase in Alumni/ae Gift Giving Behavior.

Step Three. Multiply the (.20) increase by (the Number of Student Activities — Capacity to Give) path coefficient of (.001). This results in a (.0002) increase in Capacity to Give.

Step Four. Multiply the (.0002) increase in Capacity to Give by (the Capacity to Give — Alumni/ae Gift Giving Behavior) path coefficient of (.341). This results in a (.00007) increase in Alumni/ae Gift Giving Behavior.

Step Five. Add together the increase from each of the two main paths to obtain the magnitude of the total effect. Add the (.01663) from the MTG path to the (.00007) increase from the CTG path together. This results in a (.0167) or 2% overall increase in Alumni/ae Gift Giving Behavior. So, a 20% increase in the Number of Student Activities participated in results in a 2% increase in Gift Giving Behavior of an alumnus in our sample. To further illustrate this capability a second example is presented below.

Example Two. How would a 50% increase in the Number of UM Degrees earned affect the Gift Giving Behavior of an alumna in our sample with two UM degrees?

Step One. Multiply the (.50) increase by (the Number of UM Degrees — Motivation to Give) path coefficient of (.152). This results in a (.076) or 8% increase in Motivation to Give.

Step Two. Multiply the (.076) increase in Motivation to Give by (the Motivation to Give — Alumni/ae Gift Giving Behavior) path coefficient of (.298). This results in a (.0226) or a 2% increase in Alumni/ae Gift Giving Behavior.

Step Three. Multiply the (.50) increase by (the Number of UM Degrees — Capacity to Give) path coefficient of (.245). This results in a (.1225) or 12% increase in Capacity to Give.

Step Four. Multiply the (.1225) increase in Capacity to Give by (the Capacity to Give — Alumni/ae Gift Giving Behavior) path coefficient of (.341). This results in a (.0418) or a 4% increase in Alumni/ae Gift Giving Behavior.

Step Five. Add together the increase from each of the two main paths to obtain the magnitude of the total effect. Add the (.0226) increase from the MTG path to the (.0418) increase from the CTG path together. This results in a (.0644) or 6% overall increase in Alumni/ae Gift Giving Behavior. So, a 50% increase in the Number of UM Degrees earned results in a 6% increase in Alumni/ae Gift Giving Behavior of an alumna in our sample.

In summary, the *what if analysis* capability has the potential to provide development practitioners with a powerful modeling tool to explore the impacts that changes in programmatic thrusts or staff deployment approaches might have on Alumni/ae Gift Giving Behavior. This also has the potential to be an extremely powerful source of information to aid development professionals in decision making.

Implications of PLS Model Results for Market Segmentation

Another important implication of this dissertation is that the measurement variables that were included in this study point to significant ways in which any alumni body might be segmented. Some of these have included: sex, age, marital status, number of children, spouse and parental attendance at the university, number of degrees earned at the university, number of degrees earned at other institutions, income level, number of student activities, number of alumni/ae activities, attitudes toward the university, attitudes toward their education, number of gifts, gift total, number of years giving, major donor status, and whether the university is in one's will. All of these measures represent criteria upon which segmentation decisions might be made. The array of choices of the 18 measures just listed may seem dizzying, however, they represent options from which the university may draw in tailoring fund raising appeals. The size of the path and the loadings in the extended models provide a basis for assessing the relative influence each measure has on alumni/ae gift giving decisions. These paths and loadings present a prioritized list of issues that might be included in tailoring fund raising appeals to different groups of alumni/ae. It is clear from the results of our extended models that there are many factors which influence giving decisions, many of which this model did not identify. However, the model results do provide an empirically prioritized basis upon which to select issues and measures to segment groups of alumni/ae and tailor fund raising messages.

The important point of segmentation is to appeal to the institution's differing constituents in ways that are meaningful, or apt to be meaningful, to them rather than in ways that are convenient or expedient for fund raising staff. In a large public research university such as the University of Michigan, there is also a host of internal constituents who must be pleased as a part of the fund raising process, such as deans, central development officers, fund raising committees, and directors of development at the school and college level. It is important that the line fund raising personnel do not put the needs of internal publics ahead of those of the actual donors. The implication here is that a *prospect-centered orientation* rather than an institution-centered orientation to fund raising is most likely to be successful in meeting donor needs and achieving optimal revenues. In the 1992 presidential election, a theme that was credited as playing a major role in President Clinton's victory was his staff's slogan, "It's the economy, Stupid." The purpose of this now famous slogan was to remind campaign staff that the issue voters cared most about was the economy. Perhaps a corollary could be developed for fund raising personnel that reminds us that it is the needs of the donor that matter most in getting alumni/ae to "vote" with their dollars.

Implications for Involvement with Students Prior to Graduation

Results of the extended model, while only illustrative, do point to another major implication for fund raising practitioners—to look at interfacing with students while they are still in the educational pipeline. Are alumni/ae donors born or are they developed? Issues raised by Sweeney (1982) included exposure of students to the benefits and responsibilities of alumni/ae financial support of their alma mater. Sweeney identified the need for higher education institutions to cultivate, develop and educate their current students to the need for and role of alumni/ae financial support if those current students are to make the transition from "student" to "alumni/ae donor." Such practices might include providing greater visibility to financial aid, grants, awards, equipment, conference attendance, and resource materials that

have been made possible through alumni/ae financial giving. It is when current students see how their own educational experiences are enriched by alumni/ae financial support that they can personalize and internalize the benefits of this sort of philanthropy. In this way, the idea of alumni/ae giving moves from an abstract concept to a concept to which they can personally relate. Clearly, students' educational experiences are enriched by the private support alumni/ae provide at the University of Michigan. However, it is likely that advertising and promoting the ways in which alumni/ae financial support benefits current students could be made more explicit. Along with this message should be the tandem message that current students also have a responsibility to give back to the University after graduation, as those ahead of them have done.

Strengths and Weaknesses of this Study

This section will discuss the major strengths and weaknesses of this study. Several important strengths can be identified. First, through the second generation multivariate analysis techniques employed in this study, two important findings regarding the relationship of Capacity to Give and Motivation to Give on Alumni/ae Gift Giving Behavior were identified. The first is the interaction construct in this study did not add significant power in explaining or predicting Alumni/ae Gift Giving Behavior. The second is that Capacity to Give also had a mediating (or indirect) effect on Alumni/ae Gift Giving Behavior. These two findings provide a theoretical basis upon which future research can build and expand the theory of alumni/ae giving.

A second strength of this research is the measurement of the main effects of our models—Capacity to Give, Motivation to Give and Alumni/ae Gift Giving Behavior—were highly successful in terms of high positive loadings and significant paths. These findings were robust across all samples and models. This is important in light of the fact that prior research has had to rely on far more abstract and indirect measures of Capacity to Give. Similarly, the

results of this study validate four basic measures of Motivation to Give that have figured prominently in prior research (Number of Alumni/ae Activities, General Attitude Toward the University, Preparation for Life, and Preparation for Career). Lastly, in the area of measures, this study identified effective measures of Alumni/ae Gift Giving Behavior which had not been previously explored in prior research (Gift Total, Number of Gifts, Number of Years Giving, and Major Donor Status).

A third strength of the study is that the census respondents were representative of the alumni/ae population of the University relative to the schools or colleges from which they graduated. The percentage of alumni/ae respondents to the census survey closely reflected the alumni population of the University with regard to this criteria. This was an important point in determining whether the Capacity to Give measures of personal income and household income reported by census respondents accurately reflected alumni/ae income. If census respondents had not been representative of the schools and colleges from which they graduated it is likely that the measures of income used in the study would have been under stated or over stated.

Lastly, the way this study was operationalized through modeling procedures provides the added power of being able to conduct the *what if analysis*, as illustrated in the prior section. With the results of the extended model, it is possible for the data analyst to gauge the percentage of change in Alumni/ae Gift Giving Behavior given a specified change in any of the model's exogenous measures. This capability provides researchers and fund raising practitioners with a powerful tool in exploring differing sampling approaches and in estimating the impact of different programming directions or staff deployment decisions on overall revenues from alumni/ae.

Four primary weaknesses can be identified regarding the study. The first is that the gift crediting policy that was in place at the University of Michigan at the time these data were collected had a strong bias toward male donors, as was the case with most higher education institutions at this time. This limitation prevented the study from being able to

explore differences between men's and women's giving, or the levels of women's giving at different stages in their lives (e.g., being able to compare married career women's giving behavior with single career women's giving behavior). As the need for private support of American higher education has become more acute, so has awareness of the significant and increasingly powerful influence women are having in all areas of charitable giving.

A second limitation of the study is that the samples used for analysis were not entirely representative. The overall study sample of 110,010 respondents to the census questionnaire had an oversampling of donors and of men. This presented a bias toward men and donors in the data. Further, the process of extracting 1% samples and their subsets further limited the representativeness of the data by utilizing only those respondents who provided complete responses to the three measures of Capacity to Give and the four measures of Motivation to Give. One could logically infer that this would have biased the sample to some extent toward respondents who had positive feelings toward the University and, thus, were most cooperative in providing the requested information.

A third limitation to the study is that the measures selected to reflect the exogenous variables in the conceptual model, Academic Integration and Social Integration, did not correlate well enough to form as latent variables. As a result, the extended model estimations were presented only to illustrate the effects that the individual measures had on Capacity to Give and Motivation to Give in the extended model. The results of the extended model estimation were not representative because of the influence of singularity of the concrete drivers in the model. So, the structural theoretical model estimations that excluded the influences of the concrete drivers presented in the study are the most meaningful results; therefore, the primary benefits of the study are theoretical rather than applied.

A fourth limitation to the study data is that, at the time these data were collected, the University's annual giving program was still in its infancy. A former director of annual giving at the University reported that Law, Dentistry and Business Administration were the only 3 units, out of a possible 18, that were involved in an organized annual giving appeal at

the time these data were collected. She further reported that some of these three units were not routinely using business reply envelopes in their direct mail solicitations, which are now considered a standard procedure. It is also reported that recent graduates of the University were not solicited at all when these data were collected. So, it is not possible to identify relevant giving information on recent graduates in the sample versus their alumni/ae counterparts who graduated ahead of them (M. Hoff, personal communication, November 29, 1992).

Recommendations for Future Research

The strengths and weaknesses just presented provide several directions for future research. First, follow-up studies like this one should be done at other large public research universities with a gender sensitive gift crediting system. Alumni research has historically focused on discriminating between donors and nondonors; future research should also focus on distinctions between female and male giving of all types (annual giving, major gifts, and trusts and bequests). American higher education institutions are urgently in need of information that can help them to better guide their future fund raising strategies relevant to the involvement, cultivation, and solicitation of women donors. Successful capital campaigns at women's colleges such as Wellesley have reshaped the way many coeducational institutions are now approaching prospect identification. Organizations such as the National Network of Women as Philanthropists are working to assist institutions to develop new approaches to increasing the involvement of women in fund raising not merely as volunteers, but also as donors. Institutions such as the University of Wisconsin-Madison, Cornell, UCLA, the University of Pennsylvania, and the University of Michigan have all launched ambitious new programs to involve women as donors. Research is needed to better understand what motivates women to give, what types of solicitation approaches women best respond to, what types of recognition

are valuable to women, and what areas of higher education women are most interested in funding.

A second area of alumni research that appears to be ripe for exploration is senior class giving and young alumni/ae giving programs. These programs are in place at virtually every higher education institution in the country with a fund raising program, yet there is almost no empirical research that can affirm or deny the importance of such programs. The work of Connolly and Blanchette (1986) that was highlighted in chapter 2 is one of the few available studies that have addressed this issue. These programs are based on the belief that getting college seniors and young alumni/ae to participate as donors will develop their habit of giving and that, as these alumni/ae progress in their careers, their gifts will increase in size as their incomes increase. The theory behind these programs appears to make conceptual sense, however, there is little research to substantiate the validity of the practice. The cost of these programs is substantial at most institutions, yet the resources they bring in are usually at break-even level or, in many cases, below break-even. If it cannot be substantiated that these programs do, in fact, create the habit of giving and bring in long-term revenues to an institution, they should be eliminated to free up scarce financial resources and staff time for other areas of fund raising.

Another recommendation for future research would be to continue to explore measures that appear to influence alumni/ae capacity to give and motivation to give. It would be interesting to replicate this study using a better set of measurement variables for the exogenous constructs that were proposed for Academic Integration and Social Integration.

A fourth recommendation for future research would be to explore alternatives to the self-reported measures of personal income and household income that were used in the Capacity to Give latent variable. Measures such as liquidity and net worth appear to have the potential to be even more accurate measures of Capacity to Give than the self-reported measures of income used in this study.

A fifth recommendation for future research would be to explore additional measures and variables that can account for substantially more variance in Alumni/ae Gift Giving Behavior. The structural theoretical model presented in this study was only able to account for 25% of the variance in Alumni/ae Gift Giving Behavior. It is clear that additional factors must be included in an analysis of this type if the level of variance that can be accounted for is to get above the 25% level. One suggestion for consideration is the inclusion of the type of solicitation techniques that are used, (e.g., direct mail, telemarketing, peer solicitations, reunion solicitations, or personal visits with major gift fund raisers).

A sixth area of possible future research is to study what influences graduate and professional education have in either supporting or diminishing the influences of the undergraduate experience in predicting Alumni/ae Gift Giving Behavior. A related issue would be what influences do graduate and professional education have in redirecting the focus of alumni/ae financial giving? In other words, how would the giving of an alumnus/a of the school of arts and science at the undergraduate level be likely to change after receiving a law degree, or a medical degree? Would the alumnus/a be more likely to support both the undergraduate college and professional school, or only one? And if only one, which one? Another related question would be what influences do career networks of alumni/ae who receive graduate and professional education have in their giving decisions? For example, what influence would membership in the bar association (or other career related professional organizations that often sponsor collegiate clubs and/or social functions) have in giving decisions?

A seventh area of possible future research is to explore the factors that affect and influence continued alumni/ae giving. The majority of research on alumni/ae giving has been oriented to why alumni/ae make initial giving decisions. However, very little research effort has been expended to look at the life cycle of alumni/ae donors. What is it that makes an individual continue to give year in and year out? What is it about these individuals that is different from alumni/ae donors who only give on a sporadic basis? The model within the

model analysis presented at the end of chapter 4 may be a beginning point to exploring this area of alumni/ae giving.

Lastly, future research should consider the use of electronic screening technologies as a basis for learning about institutional alumni/ae. These programs can provide: name, address and telephone number updates through credit services; affluence ratings from the U.S. Census on a block group basis (i.e., how affluent the neighborhood lived in is); property and land holdings through county level data bases; and liquidity information related to holdings of financial instruments and any transactions related to these assets recorded with the Securities and Exchange Commission (e.g., stock purchases and sales). In addition to these data bases, a peer screening program which have alumni/ae review lists of names of other alumni/ae who live in the same geographic region and give estimates of their giving potential based on their personal knowledge of these individuals have potential to change the way institutions learn about their alumni/ae. All of these measures may well combine to replace the alumni survey as it has been known these last thirty years. If this is so, perhaps the only information necessary to collect in future alumni/ae data gathering projects will be attitudinal and behavioral information. Clearly, electronic screening technology will play an increasingly important role in future data collection efforts regarding alumni/ae gift giving potential at higher education institutions across the country.

Perspectives On Building Effective Alumni/ae Fund Raising Programs

Based on the review of the literature on alumni/ae giving and the findings of this study, the following is an intuitive and speculative presentation of some perspectives on building effective alumni/ae fund raising programs. Seven critical points for building effective alumni/ae fund raising programs are presented as a model for fund raising practitioners to review their own programs.

1. Prospect Centered Focus

Effective alumni/ae fund raising programs are those that are organized around the needs, desires, goals and interests of alumni/ae constituents. All too often, the time constraints that fund raising professionals must work under force them to select administrative convenience and efficiency over the needs of the donor or donor prospect. However, giving donors opportunities to make financial contributions to the areas of the university that are of personal interest has more to do with effective fund raising than does administrative convenience. How do alumni/ae fund raising professionals identify the needs of their constituents? They must ask! One important function that all fund raising professionals need to keep at the forefront of their minds is asking for and listening to the concerns, interests and ways in which alumni/ae would like to be involved in the life of the university. This can be done through one-on-one interviews, focus groups, and mailed and telephone surveys. The method used, however, is not as important as regularly seeking feedback from alumni/ae to find out how the fund raising office is doing in meeting their needs and listening for ways to serve them better.

2. Utilize Existing Alumni/ae Data Base Information to Develop Targeted Fund Raising Appeals

The data analysis approach using the Partial Least Squares (PLS) computer package utilized in this study offers fund raising professionals the opportunity to learn about their alumni/ae constituents from their own existing records. The overriding strength of this data analysis approach is that it uses a secondary analysis of existing data. This is a strength in that most higher education institutions already have collected the types of information contained in this study from their own alumni/ae constituents, but have not had the time or the information about how to analyze the data in order to meaningfully guide their fund raising strategy and tactics. Now, through the availability of the PLS program (which will run on an

ordinary IBM PC or compatible computer) fund raising professionals have a highly sophisticated data analysis tool that can provide uses for their data that many other computer packages can not offer. The analysis of existing data base information can show fund raising professionals what variables or issues are most important in the gift giving decisions of their alumni/ae. This information can be directly translated into appeals that address these points. The PLS package also has the capability to model the impact of how increases or decreases in certain variables influence gift giving decisions. This can also provide the fund raising professional with an informed basis to make programmatic changes to stimulate higher levels of alumni/ae giving. The secondary analysis of existing data also provides an informed basis for collecting new data. Essentially this tells the fund raising professional what information is most important to collect from alumni/ae to predict their future gift giving behavior.

3. Forge Collaborative Relationships With Faculty and Graduate Students For Research Purposes

Faculty and graduate students should be brought on board to assist development professionals to create and advance their own fund raising research agendas. Fund raising professionals can start to establish their own research agendas by having department heads identify questions that they would most like to have answered about their alumni/ae constituents. The manager of the alumni/ae data base should be involved in this process. This individual is of central importance in utilizing the institution's existing records for research purposes.

The experience, knowledge and insight of seasoned development professional are invaluable to the researcher new to the fund raising field. Cultivating relationships with faculty may, in many instances, be as easy as letting them know that the development office has an exciting agenda of research topics.

This type of research collaboration can benefit all parties involved. The development office can gain a sophisticated analysis of their data base that has the potential to provide information for decision making purposes in all phases of the fund raising operation.

Graduate students also benefit from this type of collaboration. They gain access to a list of research problems (i.e., dissertation topics) that are important and that people want answered. Fund raising staff should make doctoral students aware of the research questions that the development office is seeking answers to at regular intervals. For instance, if the graduate college publishes a newsletter, a development staff member could submit a regular column that talks about research currently in progress and topics that graduate student researchers are invited to explore. Names and telephone numbers of contact people with whom interested graduate students might follow up should be included.

Faculty benefit from this type of collaboration by assisting their students to identify meaningful research topics, but, more importantly, to conduct research and publish in an area where the information is critically needed. If fund raising staff have liaison assignments with academic units, they should be aware of the research opportunities that may be of interest to particular academic units. It would also be helpful to make fund raising library resources available to interested faculty and graduate students, provide photocopying facilities to faculty and students who are willing to commit to working on fund raising research projects, and provide a process for giving access to the alumni/ae data base.

The fund raising office may want to make these research collaborations more formal by signing research partnership agreements which spell out the responsibilities and expected outcomes for each party in the agreement. This is a way to protect the confidentiality of alumni/ae records while the research is being conducted.

The more that is known about donor motivation, what factors influence gift giving decisions, what solicitation methods are most effective, and how to meaningfully segment alumni/ae constituents, the more effectively American higher education institutions will be

able to make their cases for support and gain the financial resources they need to continue to meet the education, research and service needs of this country.

4. Don't Forget Women Donors

The success of capital campaigns at many women's colleges such as Wellesley have fund raisers at coeducational institutions rethinking the way they view prospect identification. The changing role of women in society has included women's changing role in philanthropy. Increasingly, married and single women alike are making their own philanthropic giving decisions. To ensure that institutions do not miss out on an important constituent market, fund raisers should review how women donor prospects are identified, cultivated and solicited. Fund raisers should review all aspects of their fund raising programs to make sure that women are being appropriately included and involved. One particularly important aspect is gift crediting policies. Little is more frustrating to a donor than to make a gift and have the gift acknowledged and credited to their spouse! Fund raising professionals should provide their donors with the opportunity to indicate how they would like to be credited for their gift (e.g., to credit them solely, to credit them and their spouse jointly, etc.). Women should also be included at all levels of volunteer positions, not simply as members of a fund raising committee, but in leadership roles, campaign planning, and high visibility assignments. This is important for achieving optimal revenues and role modeling for other women the scope of participation they can have in the fund raising process. Women should be asked for all types of gifts (annual gifts, company matching gifts, major gifts, trust and bequests, etc.). One thing is for certain—women will not give to higher education unless they are asked.

5. Look for Opportunities That Link Alumni/ae Giving to the Educational Experience

Academic leaders and fund raisers should look for opportunities to promote the connection between alumni/ae giving and benefits to current students and take advantage of the educational opportunity that these linkages offer in terms of role modeling the importance of alumni/ae financial support in the lives of both current students the university. It is through personal experiences with alumni/ae financial support that students personalize and gain an understanding of the importance of giving back to their alma mater after graduation. For example, if a student receives a scholarship that came from an endowment that was given by an alumnus/a of the institution, the recipient should be informed that alumni/ae philanthropy is supporting their education. The point of this whole process is to help the student make the connection between alumni/ae giving and the benefits this form of financial support has for students, and to encourage the student to, in turn, give back to the university when possible after graduation.

6. Make the Tie Between Continuing Education and Alumni/ae Giving More Concrete

The findings of this study and much of the prior research suggest that the number of alumni/ae activities that an individual is involved in has a positive effect on alumni/ae giving. Because this link has been established through empirical research, colleges and universities should look to building more concrete linkages between their graduates and their continuing education programs. If continued involvement with the university has a positive effect on giving, it makes sense to focus continuing education programs of academic disciplines, in part, on alumni/ae. This may also make sound financial sense from the standpoint that this definable group of individuals is already familiar with the university and its reputation. This can help to insure the financial viability of continuing education programs as well as provide the added benefit of positively affecting alumni/ae giving as a result of their involvement. For

these reasons, academic units should consider recruiting and target marketing to alumni/ae of their disciplines for continuing education programs.

7. Spend More Time on Segmenting Alumni/ae Constituents

The concept of segmentation is based on the premise that the preferences of individuals may be clustered. That is, groups of people who share certain common characteristics may also be interested in some of the same things. This is the basis for segmenting (or grouping) alumni/ae and tailoring fund raising messages that will appeal to these specific groups. Suggestions for segmenting alumni/ae include:

- Extend special recognition to alumni/ae who make first time gifts, so that they realize the university knows who they are, and in subsequent solicitations encourage them to make their "second" gift to further reinforce the university is in tune to their participation;

- Try new appeals to persistent nondonors, e.g., if an alumnus of the college of engineering has not made a gift to the college of engineering in ten years of being solicited, ask him if he would like to support the library, new support services for commuter students, or a program other than the one he has consistently refused to support;

- Using larger print in direct mail solicitations to older alumni/ae, to make them easier to read.

These are just a few examples of how segmentation can assist the fund raising professional to more effectively reach specific groups of their alumni/ae.

The author hopes that he will be excused for including what is an intentional simplification of the complex nature of alumni/ae fund raising work. These seven perspectives have been included as a first step in stimulating thought on ways to build and maintain effective alumni/ae fund raising programs. Clearly, there is much more that could and should be said about each of these seven ideas that time and space do not permit in this dissertation.

APPENDICES

APPENDIX A

ALUMNI CENSUS QUESTIONNAIRE

ALUMNI CENSUS 1986

The University of Michigan

I. BASIC RECORD

ON FILE:

1. Name:

2. Date of Birth: 3. Sex:

4. U-M Student Record Name (if different from present name):

5. Primary Mailing Address:
Check one: Business ☐ Residence ☐

6. Alternate Mailing Address:
Check one: Business ☐ Residence ☐

INDICATE CHANGE: (Please print or type)

1. Name:

Prefix First Middle Last Suffix

2. Date of Birth: __/__/__ 3. Sex: ☐ Male ☐ Female

4. Student Record Name:

First Middle Last

5. Primary Mailing Address: Bus. ☐ Res. ☐

Title and Organization

Address

City State Zip

( ) Phone

6. Alternate Mailing Address: Bus. ☐ Res. ☐

Title and Organization

Address

City State Zip

( ) Phone

II. EDUCATION

1. University of Michigan Degrees/Certificates:

Degree	Year	Campus	School/ College	Major Field

INDICATE CHANGE: (Please print or type)

Degree	Year	Campus	School/ College	Major Field

2. Degrees from Other Institutions:

Degree	Year	College/University	Major Field

3. Are you currently enrolled in a higher education institution? ☐ Yes ☐ No

III. FAMILY INFORMATION

1. Marital Status: a) ☐ Single b) ☐ Married c) ☐ Divorced d) ☐ Widowed

2. Spouse's Name:

First	Middle I.	Maiden Name (if applicable)	Last

3. Spouse's Birth Date: ___/___/___ 4. Has spouse attended U-M? ☐ No ☐ Yes Class Year: ____

5. Spouse's Profession/Title: _____

6. Number of children: ____

7. Children:

Name	Birth Date	Attended U-M YES	Attended U-M NO	U-M Degree(s)	Year(s)
	___/___/___	☐	☐		
	___/___/___	☐	☐		
	___/___/___	☐	☐		
	___/___/___	☐	☐		
	___/___/___	☐	☐		
	___/___/___	☐	☐		
	___/___/___	☐	☐		

8. Parents attended U-M: ☐ Yes ☐ No

Parent	Name	U-M Degree(s)	Year(s)
Mother			
Father			

IV. STUDENT INFORMATION

1. I participated in the following University of Michigan student activities:

a) ☐ Athletics
b) ☐ Fraternity Sorority _____
c) ☐ Student Government
d) ☐ Performing Groups _____
e) ☐ Publications
f) ☐ Honorary/Professional Student Societies
g) ☐ Special Groups/Clubs _____
h) ☐ Student-Alumni Activities
i) ☐ Other _____

2. I received financial assistance through the University: ☐ Yes ☐ No

V. WORK

1. I am: (Indicate up to two items; mark P for primary, S for secondary.)

a) ___ Employed full-time
b) ___ Self-employed
c) ___ Employed part-time
d) ___ Homemaker
e) ___ Student
f) ___ Unemployed
g) ___ Retired

2. My present/most recent occupational area is: (Check one)

ac) ☐ Accounting, Auditing
ad) ☐ Advertising
ag) ☐ Agribusiness, Farming, Ranching, Fishing
ap) ☐ Architecture, City Planning, Landscape Architecture
ar) ☐ Art
ba) ☐ Banking
bc) ☐ Building, Contracting
bu) ☐ Business (not otherwise specified)
cn) ☐ Communications, Radio, TV
cs) ☐ Computer Science/Technology
de) ☐ Dentistry
ea) ☐ Education Administration
ec) ☐ Education, College/Univ., Teaching
ed) ☐ Education, Elem./Secondary, Teaching
eg) ☐ Energy
en) ☐ Engineering
fi) ☐ Finance/Economics
fu) ☐ Fundraising, Foundations
go) ☐ Government Service
hc) ☐ Health Care Administration
hm) ☐ Home Management
hr) ☐ Hotel and Restaurant
id) ☐ Industry (other than manufacturing)
in) ☐ Insurance
jo) ☐ Journalism, Public Relations
la) ☐ Law
li) ☐ Libraries
ma) ☐ Manufacturing
md) ☐ Medicine, including all specialties
me) ☐ Merchandising (wholesale, retail)
mi) ☐ Military
mu) ☐ Music
mw) ☐ Museums
nr) ☐ Natural Resources
ns) ☐ Natural Science, Research
nu) ☐ Nursing
pa) ☐ Performing Arts
pe) ☐ Personnel, Labor Relations, Unions
ph) ☐ Pharmacy
ps) ☐ Psychology, Psychotherapy, Mental Health
pu) ☐ Public Health
re) ☐ Real Estate
rl) ☐ Religious Work
sa) ☐ Sales, Marketing
sc) ☐ Social Science, Research
sw) ☐ Social Work
sp) ☐ Sports
ot) ☐ Other _____

3. Position title and/or area of specialty if appropriate (if retired, last position):

_____

4. Other business affiliations (e.g., Corporate Board of Directors):

Affiliation	Firm
_____	_____
_____	_____

5. My academic experience at The University of Michigan prepared me for my professional career:

a) ☐ Very Effectively b) ☐ Effectively c) ☐ No Effect d) ☐ Ineffectively e) ☐ Very Ineffective!

6. My experience at The University of Michigan prepared me for life in general:

a) ☐ Very Effectively b) ☐ Effectively c) ☐ No Effect d) ☐ Ineffectively e) ☐ Very Ineffective!

7. Salary/Income: (Please check the boxes which indicate your 1985 income before taxes.)

	Personal Income	Household Income (All family members, all sources)
a) Up to $20,000	a) ☐	a) ☐
b) $20,001-$30,000	b) ☐	b) ☐
c) $30,001-$40,000	c) ☐	c) ☐
d) $40,001-$60,000	d) ☐	d) ☐
e) $60,001-$100,000	e) ☐	e) ☐
f) $100,001-$200,000	f) ☐	f) ☐
g) $200,001-$500,000	g) ☐	g) ☐
h) Over $500,000	h) ☐	h) ☐

VI. CURRENT VOLUNTEER/RECREATIONAL INTERESTS

Check as many as apply:

a) ☐ Art
b) ☐ Business Associations
c) ☐ Charitable/Political Fundraising
d) ☐ Civic Associations
e) ☐ Educational Organizations
f) ☐ Environmental Issues
g) ☐ Government/Politics
h) ☐ Health Care/Hospitals
i) ☐ Investments (e.g. stock mkt.)
j) ☐ Libraries
k) ☐ Local Community Issues
l) ☐ Minority Issues
m) ☐ Museums
n) ☐ Music
o) ☐ Recreational/Social Groups
p) ☐ Religious Groups
q) ☐ Theater/Dance
r) ☐ Travel
s) ☐ Women's Issues
t) ☐ Youth Service Organizations
u) ☐ Sports Attendance _____
v) ☐ Sports Participation _____
w) ☐ Other _____

VII. U-M RELATED INTERESTS/ACTIVITIES

1. Check as many as apply:	Currently Involved	Wish More Information
a) Alumni Programs, Services	a) ☐	a) ☐
b) Executive Training Programs	b) ☐	b) ☐
c) Donor Recognition Programs	c) ☐	c) ☐
d) School/College Fundraising Programs	d) ☐	d) ☐
e) Sports Events	e) ☐	e) ☐
f) Deferred Giving (Trust, Bequest, Estate)	f) ☐	f) ☐
g) Assisting in Recruiting Students	g) ☐	g) ☐
h) Assisting Students in Exploring Career Options	h) ☐	h) ☐
i) Serving as a Fundraising Volunteer	i) ☐	i) ☐
j) Contributing to the Campaign for Michigan	j) ☐	j) ☐
k) Other _____	k) ☐	k) ☐

2. My will or trust provides for The University of Michigan: ☐ Yes ☐ No

3. I read *Michigan Today*: a) ☐ Regularly b) ☐ Sometimes c) ☐ Never d) ☐ Do not receive

4. I would like to read more articles in *Michigan Today* on (check as many as apply):

a) ☐ Student Life
b) ☐ Scientific Research
c) ☐ Campus News
d) ☐ Literature and Art
e) ☐ Health
f) ☐ University Policies
g) ☐ Sports
h) ☐ Other _____

5. My general attitude toward The University of Michigan is: (Please circle one)

a)	b)	c)	d)	e)	f)	g)
−3	−2	−1	0	+1	+2	+3
Strongly Negative			Neutral			Strongly Positive

Today's Date: ___/___/ 86

Comments: _____

_____

_____

Thank you for completing the ALUMNI CENSUS 1986.

APPENDIX B

DEFINITION OF TERMS

DEFINITION OF TERMS

The following definitions are provided to clarify how each term is used in this study.

Alumnus/a — This term refers to an individual who has completed the requirements for a bachelors, masters, doctoral, or professional degree at the University of Michigan.

Filtering Statement — This term refers to a computer command that is used as a sorting or selection criterion for drawing a sample from an OSIRIS . IV data set. This command screens out all those cases that do not fit the criterion.

Measurement Variable — This term refers to the directly observable measures that are included in the study models.

Latent Variable — This term refers to the unobservable theoretical variables that are estimated from the measurement variables in the study models.

Outer Model — This term refers to the relationships among the measurement variables (or directly observable variables) in the study models.

Inner Model — This term refers to the relationships among the latent variables (or theoretical variables) in the study models.

Path Coefficient — This term refers to a parameter that shows the strength of effect between two latent variables.

Loading — This term refers to the correlation (or weight) of a measure to the latent variable with which it is associated.

Endogenous Variable — This term refers to variables that the model is trying to explain.

Exogenous Variable — This term refers to external variables (causes) whose origins are not part of the model structure.

Cross Sectional Data — This term refers to data that are not longitudinal in nature that look at a cross section of a study population.

Concrete Drivers — This term refers to the measurement variables that would have been used to form the Academic Integration and Social Integration latent variables proposed in this study. These two latent variables did not form, however, suggesting that the Academic Integration and Social Integration concepts do not exist, at least in the context of this study. The measures that would have made up these two latent variables were subsequently specified as latent variables made up of one observable indicator. These variables were included in the study to show their impact on alumni/ae gift giving behavior in the study's extended models. Because these latent variables are formed from one measurement indicator, they are more concrete (or less abstract) than the other latent variables in the study model. The analysis still presumes these measurement variables have a causal (driving) effect. However, to reflect this different level of abstraction they were given the term "concrete drivers."

Market Segmentation — This term refers to the marketing notion that consumer preferences are often clustered. Effective methods for dividing groups of people into "segments" often include their ability to be measurable, accessible, substantial, and durable.

Modes — This term refers to the manner in which measurement variables relate to latent variables when the study models are estimated. The PLS program allows the researcher to select among the reflective, formative, or combination modes to specify the relationship between measurement variables and latent variables.

Theory Building — This term refers to model estimations that attempt to explain new relationships among latent variables.

Theory Testing — This term refers to model estimations that attempt to confirm relationships among latent variables that have been identified or proposed by prior research.

BIBLIOGRAPHY

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Bagozzi, R. P., & Yi, Y. (1989). On the use of structural equation models in experimental designs. *Journal of Marketing Research, 26,* 271–284.

Balz, F. (1987). *Donors to higher education: A statistical profile of individual giving.* Washington, D.C.: National Institute of Independent Colleges and Universities. (ERIC Document Reproduction Service No. ED 284 507)

Beeler, K. J. (1982). *A study of predictors of alumni philanthropy in private universities.* Ph.D. dissertation, University of Connecticut.

Blumenfeld, W. S., & Sartain, P. L. (1974). Predicting alumni financial donation. *Journal of Applied Psychology, 59*(4), 522–523.

Boyle, J. J. (1990). *College quality and alumni giving.* Ph.D. dissertation, Syracuse University.

Brittingham, B. E., & Pezzullo, T. R. (1990). *The campus green: Fund raising in higher education.* ASHE-ERIC Higher Education Report No. 1. Washington, D.C.: The George Washington University, School of Education and Human Development.

Carbone, R. F. (1986). *An agenda for research on fund raising.* College Park, MD: University of Maryland, Clearinghouse for Research on Fund Raising.

Carlson, J. (1987). *The role of alumni in the financial survival of independent education.* Ed.D. dissertation, University of California, Los Angeles.

Caruthers, F. A. S. (1973). *A study of certain characteristics of alumni who provide financial support and alumni who provide no financial support for their alma mater.* Ed.D. dissertation, Oklahoma State University.

Connolly, M. S., & Blanchette, R. (1986). Understanding and predicting alumni giving behavior. In J. A. Dunn (Ed.), *New directions for institutional research: No. 51. Enhancing the management of fund raising* (pp. 69–89). San Francisco: Jossey-Bass.

Council for Aid to Education. (1991a). *Voluntary support of education 1990: Vol. 1. National estimates and survey summary.* New York: Author.

Council for Aid to Education. (1991b). *Voluntary support of education 1990: Vol. 2. Detailed survey results by institution.* New York: Author.

Curti, M., & Nash, R. (1965). *Philanthropy in the shaping of American higher education.* New Brunswick, New Jersey: Rutgers University Press.

Cutlip, S. M. (1990). *Fund raising in the United States.* New Brunswick, NJ: Transaction Publishers.

Dahl, R. W. (1981). *Early predictors of alumni giving: An empirical study of selected pre-enrollment characteristics and collegiate career experiences in the giving behavior of alumni of a public university.* Ed.D. dissertation, University of Kentucky.

Dean, J. O., Jr. (1985). *Educational fund raising in church affiliated colleges: A predictive and prescriptive model.* Ph.D. dissertation, University of Alabama.

Deel, W. S. (1971). *Characteristics of university graduates who are members or nonmembers of an alumni association.* Ed.D. dissertation, Indiana University.

Dietz, L. H. (1985). *Iowa State University alumni contributions: An analysis of alumni giving patterns by selected class years—1974 and 1979.* Ph.D. dissertation, Iowa State University.

Drachman, S. (1983). *Factors accounting for variations in levels of private giving to higher education in the United States.* Ph.D. dissertation, University of Arizona.

Dunn, J. A. (1985, October). *Modeling alumni/ae annual fund participation: A partial success at a liberal arts college.* Paper presented at the 10th Annual Conference of the North East Association for Institutional Research, Hershey, Pennsylvania.

Duronio, M. A., Loessin, B., & Borton, G. (1988a, April). *A survey of fund-raising methods: Implications for management.* Working paper no. 5. Paper presented at a meeting of the American Educational Research Association, New Orleans, Louisiana. (ERIC Document Reproduction Service No. ED 296 651)

Duronio, M. A., Loessin, B., & Borton, G. (1988b, May). *A common notion about fund-raising success: Myth or fact?* Working paper no. 4. Paper presented at an AIR Forum, Phoenix, Arizona. (ERIC Document Reproduction Service No. ED 298 858)

Evans, J. H. (1986). *A study of the attitudes of the alumni of historically black colleges and universities toward financial giving to their alma maters.* Ed.D. dissertation, Morgan State University.

Feldman, L. S. (1992). *An empirical investigation of factors affecting marketing management decision making and firm performance.* Ph.D. dissertation, University of Michigan.

Frederick, R. E. (1984). *Intercollegiate football success and institutional private support: A national study of 81 public universities, 1965–1979.* Ph.D. dissertation, University of Kansas.

Fornell, C. (1982). A second generation of multivariate analysis—An overview. In C. Fornell (Ed.), *A second generation of multivariate analysis: Methods* (pp. 1–21). New York: Praeger Publishers.

Fornell, C. (1987). A second generation of multivariate analysis: Classification of methods and implications for marketing research. In M. J. Houston (Ed.), *Review of marketing 1987* (pp. 407–450). Chicago: American Marketing Association.

Fornell, C. (1989). The blending of theoretical and empirical knowledge in structural equations with unobservables. In H. Wold (Ed.), *Theoretical empiricism* (pp.153–173). New York: Paragon House.

Fornell, C., & Bookstein, F. L. (1982). Two structural equation models: LISREL and PLS applied to consumer exit-voice theory. *Journal of Marketing Research 19,* 440–452.

Frey, J. H. (1985). The winning team myth: Studies say top teams don't automatically bring in top dollars. *CASE Currents 11*(1), 33–35.

Gardner, P. M. (1975). A *study of the attitudes of Harding College alumni with an emphasis on donor and nondonor characteristics.* Ph.D. dissertation, Ohio University.

Haddad, F. D., Jr. (1986). *An analysis of the characteristics of alumni donors and nondonors at Butler University.* Ed.D. dissertation, Butler University.

Hall, J. O. (1967). *A survey of the attitudes of Cornell alumni toward their alma mater.* Ed.D. dissertation, Cornell University.

Harris, J. T. (1988). *An assessment of factors related to successful fund raising at public doctorate-granting universities.* Ph.D. dissertation, Pennsylvania State University.

Ishoy, V. A. (1972). *Fund raising, a function of development in financing higher education.* Ed.D. dissertation, Brigham Young University.

Jefferson, N. L. (1985). *Institutional advancement at land-grant universities.* Ph.D. dissertation, University of Missouri at Columbia.

Johnson, M. D., Lehmann, D. R., Fornell, C., & Horne, D. R. (1992). Attribute abstraction, feature-dimensionality, and the scaling of product similarities. *International Journal of Research in Marketing, 9,* 131–147. North-Holland: Elsevier Science Publishers.

Jöreskog, K. G., & Sörbom, D. (1989). *LISREL 7: A guide to the program and applications.* Chicago: SPSS Inc.

Keller, M. J. C. (1982). *An analysis of alumni donor and nondonor characteristics at the University of Montevallo.* Ph.D. dissertation, University of Alabama.

Korvas, R. J. (1984). *The relationship of selected alumni characteristics and attitudes to alumni financial support at a private college.* Ph.D. dissertation, University of Missouri, Kansas City.

Kotler, P. (1975). *Marketing for nonprofit organizations.* Englewood Cliffs, NJ: Prentice-Hall, Inc.

Kotler, P., & Fox, K. (1985). *Strategic marketing for educational institutions.* Engelwood Cliffs, NJ: Prentice-Hall, Inc.

Kraus, R. J. (1988). *Factors which influence financial support by recent alumnae at small catholic colleges in New England.* Ed.D. dissertation, Boston University.

Kroll, D. M. (1991). *Role expansion in student affairs: Student affairs officers and fundraising in selected midwestern liberal arts colleges.* Ph.D. dissertation, The Ohio State University.

Kuh, G. D., Schuh, J. H., Whitt, E. J., & Associates. (1991). *Involving colleges: Successful approaches to fostering student learning and development outside the classroom.* San Francisco: Jossey-Bass Publishers.

Leslie, L. L., & Ramey, G. (1988). Donor behavior and voluntary support for higher education institutions. *Journal of Higher Education, 59*(2), 115–132.

Lohmoller, J. (1989). *Latent variable path modeling with partial least squares.* Heidelberg, Germany: Physica-Verlag.

MacIsaac, C. R. (1973). *Attitudes of donors at selected institutions of higher education.* Ph.D. dissertation, Iowa State University.

Markoff, R. M. (1978). *An analysis of the relationship of alumni giving and level of participation in voluntary organizations: A case study.* Ph.D. dissertation, University of Toledo.

Marts, A. C. (1934, July 7). College football and college endowment. *School and Society, 40,* 14–15.

Maxwell, H. B. (1965). *The formative years of the university alumni movement as illustrated by studies of the University of Michigan and Columbia, Princeton, and Yale Universities 1854–1918.* Ph.D. dissertation, University of Michigan.

McGinnis, D. R. (1980). *A study of fund-raising programs at selected state colleges and regional universities.* Ed.D. dissertation, University of Georgia.

McKee, D. F. (1975). *An analysis of factors which affect alumni participation and support.* Ed.D. dissertation, Indiana University.

McKinney, R. J. (1978). *Factors among select donors and nondonors related to a private university.* Ed.D. dissertation, University of Miami.

McNally, F. E. (1985). *An analysis of alumni philanthropy related to personal, academic, and social characteristics.* Ed.D. dissertation, University of San Francisco.

McNulty, J. W. (1976). *Alumni and giving: A study of student personnel services and alumni philanthropy.* Ph.D. dissertation, Loyola University of Chicago.

Melchiori, G. S. (1988a). Alumni research: An introduction. In G. S. Melchiori (Ed.), *New directions for institutional research: No. 60. Alumni research: Methods and applications* (pp. 5–11). San Francisco: Jossey-Bass.

Melchiori, G. S. (1988b). Applying alumni research to fundraising. In G. S. Melchiori (Ed.), *New directions for institutional research: No. 60. Alumni research: Methods and applications* (pp. 51–65). San Francisco: Jossey-Bass.

Melchiori, G. S., & Szady, S. M. (1987, April). *Alumni census 1986: The University of Michigan.* Unpublished report on the 1986 University of Michigan alumni census, University of Michigan, Ann Arbor.

Miracle, W. D. (1977). *Differences between givers and nongivers to the University of Georgia annual fund*. Dissertation, University of Georgia.

Moden, G. O., & Williford, A. M. (1988). Applying alumni research to decision making. In G. S. Melchiori (Ed.), *New directions for institutional research: No. 60. Alumni research: Methods and applications* (pp. 67–76). San Francisco: Jossey-Bass.

Morris, D. A. A. (1970). *An analysis of $10,000 or more to the $55 million program at the University of Michigan*. Ph.D. dissertation, University of Michigan.

O'Connor, W. J. (1961). *A study of certain factors characteristic of alumni who provide financial support and alumni who provide no financial support for their college*. Ed.D. dissertation, The University of Buffalo.

Paton, G. J. (1982). *Correlates of successful college fund raising*. Ph.D. dissertation, Stanford University.

Paton, G. J. (1986). Microeconomic perspectives applied to development planning and management. In J. A. Dunn (Ed.), *New directions for institutional research: No. 51. Enhancing the management of fund raising* (pp. 17–37). San Francisco: Jossey-Bass.

Pezzullo, T. R., & Brittingham, B. E. (1990). The study of money: What we know and what we need to know about college fund raising. *Case Currents 16* (7), 44-49.

Reichley, R. A. (1977). Alumni programs. In A. W. Rowland (Ed.), *Handbook of institutional advancement* (pp. 304–315). San Francisco: Jossey-Bass.

Richards, M. D., & Sherratt, G. (1981). *Institutional advancement strategies in hard times*. AAHE-ERIC Higher Education Report No. 2. Washington, D.C.: American Association for Higher Education. (ERIC Document Reproduction Service No. ED 207 475)

Shadoian, H. L. (1989). *A study of predictors of alumni philanthropy in public colleges*. Ed.D. disseration, The Universtiy of Connecticut.

Sigelman, L., & Carter, R. (1979). Win one for the giver? Alumni giving and big-time college sports. *Social Science Quarterly, 60*(2), 284–93.

Spaeth, J. L., & Greeley, A. M. (1970). *Recent alumni and higher education: A survey of graduates*. Berkley, CA: Carnegie Commission on Higher Education.

Sweeney, S. S. (1982). *An analysis of selected exchange relations and transactions between a college of nursing and a selected public—its alumnae.* Ph.D. dissertation, University of Iowa.

Szady, S. M. (1988). Alumni data analysis. In G. S. Melchiori (Ed.), *New directions for institutional research: No. 60. Alumni research: Methods and applications* (pp. 39–50). San Francisco: Jossey-Bass.

Tobin, K. C. (1984). *The language of request: Annual gift giving to a university.* Ph.D. dissertation, Stanford University.

Volkwein, J. F., Webster-Saft, L., Xu, W., & Agrotes, M. H. (1989, May). *A model of alumni gift giving behavior.* Paper presented at the annual meeting of the Association for Institutional Research, Baltimore, Maryland. (ERIC Document Reproduction Service No. ED 308 761)

Weber, N. (Ed.). (1991). *Giving USA: The annual report on philanthropy for the year 1990.* New York: American Association of Fund-Raising Counsel Trust for Philanthropy.

Welch, P. A. (Ed.). (1980). *New directions for institutional advancement: No. 7. Increasing annual giving.* San Francisco: Jossey-Bass.

Wilmoth, D. (1987). *The effect of the giving club threshold on alumni annual giving.* Ph.D. dissertation, University of Rochester.

Wolfle, L. M. (1985). Applications of causal models in higher education. In J. C. Smart (Ed.), *Higher education: Handbook of theory and research* (Vol. 1, pp. 381–413). New York: American Educational Research Association, Agathon Press.

Wolshon, D. J. (1981). *Alumni fund raising in private colleges.* Ph.D. dissertation, Wayne State University.

Woods, J. (1987). *Factors associated with gift income in public research and doctoral-granting institutions.* Ph.D. dissertation, Washington State University.

Worth, M. J. (Ed.). (1985). *Public college and university development: Fund raising at state universities, state colleges, and community colleges.* Washington, D.C.: Council for Advancement and Support of Education. (ERIC Document Reproduction Service No. ED 256 197)